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ABSTRACT

The Occupational Information System (OIS) is a formal standardized system for the collection, analysis, and dissemination of occupational information that has been mandated by several major pieces of educational legislation. Designed to aid a wide audience--including direct participants in the labor market, persons whose job it is to help others prepare for the world of work, and planners and administrators--an OIS includes the following four data categories: occupational demand, occupational supply, occupational characteristics, and complementary information. A fifth component involves a procedure for interfacing and analyzing occupational supply and demand data. Because it is intended to be a user-oriented system, the OIS will be complemented with a comprehensive user education and training program. The State Occupational Information Coordinating Committee (SOICC), the body charged with coordinating the necessary resources to develop and implement an OIS, has the following four operational alternatives for OIS development: an information clearinghouse, a publication-producing OIS, a network of interrelated programs and systems, and a comprehensive computer-based system. (Concluding this report are a SOICC director's strategy for developing an OIS along with descriptions of agency programs and other data sources relevant to the OIS; occupational, industrial, and instructional classification structures; cross-code references; and OIS development aids.) (MN)

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A Framework for Developing an
OCCUPATIONAL INFORMATION SYSTEM

October 1979

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National Occupational Information Coordinating Committee
Office of Education
Bureau of Labor Statistics
Employment and Training Administration
National Center for Education Statistics

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PREFACE

This document represents the first efforts of the National Occupational Information Coordinating Committee (NOICC) to define the basic concepts of the Occupational Information System (OIS). The concepts are derived from an interim project to produce guidance for SOICC Directors regarding the content and structure of the OIS and the methods by which SOICC Directors can facilitate OIS development in their respective States. This document is not intended to provide a comprehensive description of the OIS, nor is it intended to be a procedural manual for OIS development and implementation. Instead, the minimum parameters of the OIS are outlined. These parameters provide the basis or core on which States can build in subsequent years.

States will be given wide latitude in their approach to the implementation of an OIS. Each State has a unique set of OIS operational considerations, and therefore NOICC will not dictate every implementation aspect of the OIS to SOICCs. NOICC's role is to define the basic informational requirements and standards that an OIS must satisfy. The SOICCs will determine and implement an appropriate OIS operational process for satisfying these requirements and standards. Throughout this document there will be suggestions and recommendations for SOICC Directors to consider in coordinating the development of the OIS in their respective States. SOICC Directors can use this document in two ways:

- First, the document provides ideas and materials to be utilized by SOICC Directors in structuring OIS related training for target audiences in their States.
- Second, the document helps the SOICC Director develop an Action Plan for the OIS implementation in his or her State.

This document is the culmination of the efforts of many people. These efforts are appreciated by NOICC and we would like to take this opportunity to express our gratitude. Efforts were initiated on this paper by a SOICC Directors Resource Group composed of the following SOICC Directors: Rex Clay of West Virginia, Coy Cozart of Arkansas, Gary King of New Jersey, Carol Kososki of South Carolina (who also served as the chairperson of the resource group), Jeff Windom of Ohio, Warren Wolff of Colorado, and John Van Zant of California. In addition, contributions to the paper were also provided by certain SOICC Directors who did not participate in the original SOICC Directors Resource Group, including: Dave Fretwell of Oregon, Mary Louise Simms of Alabama, and Stuart Tischler of Massachusetts.

Significant contributions were also made to this document by personnel from NOICC's signatory agencies. In particular, we would like to thank Walter Postle of the San Francisco regional office of the Employment and Training Administration, and Neal Rosenthal, Dixie Sommers, and Peter Ward of the Bureau of Labor Statistics. Other noteworthy contributors include Odessa Dubinsky, a special consultant to the Employment and Training Administration, and Ivory Lyons, an economist from the staff of the North Carolina SOICC. Lastly, we would like to thank the staff of Program Resources, Inc. for their efforts in compiling and organizing the material in this document.

This document is NOICC's first major guidance to the States with respect to the OIS. Subsequent guidance will be much more comprehensive in scope. NOICC Administrative Memorandum 79-1 will announce to the SOICCs a competitive grant that will result in the development of an OIS Handbook and an OIS Training Package. The OIS Handbook, as currently envisioned, is a multi-volume document that will thoroughly describe the information requirements of an OIS, the possible sources of data for an OIS, procedural guidelines for implementing the OIS, the alternative methods of delivering or disseminating information, and the various uses of OIS data in the planning and decision-making processes. The OIS Handbook will have technical appendices that explain in detail the data sources and methods of analysis to be used in the OIS. In short, the OIS Handbook will be a comprehensive description of the

Occupational Information System and its attendant components and functions. By contrast, this document only represents a first step--in effect, a Framework For Developing An OIS.

I. INTRODUCTION

The notion of constructing a formal and standardized system for the collection, analysis, and dissemination of occupational information is relatively new. Several pieces of legislation have referenced or mandated the development and use of an Occupational Information System (OIS). However, to date, a detailed explanation of the structure and content of the OIS has been lacking. To provide leadership in the development and implementation of the OIS, Congress has mandated the establishment of the National Occupational Information Coordinating Committee (NOICC) and the State Occupational Information Coordinating Committees (SOICCs). Since that initial legislative mandate was established, NOICC and the OIS have been discussed in other legislative acts. This chapter provides background information on how specific legislation led to the formulation of NOICC strategy and policies. Also, a discussion shows how the strategy and policies translate into operational tactics. Finally, the chapter concludes with a brief overview of the contents and structure of the remainder of this document.

1. LEGISLATIVE BACKGROUND

The establishment of NOICC was mandated by the Education Amendments of 1976, P.L. 94-482, Title II, Vocational Education, Section 161(b)(1) and (b)(2). Section 161(b)(1) states that a primary purpose of NOICC shall be:

> To develop and implement an occupational information system to meet the common occupational information needs of vocational education programs and employment and training programs at the national, State, and local levels, which system shall include data on occupational demand and supply based on uniform definitions, standardized estimating procedures, and standardized occupational classifications.

Although this section of the law clearly indicates that an OIS should serve the occupational information needs of vocational education and employment and training programs, the specific information needs are never identified. Moreover, the dimensions of the system, in relation to occupational supply and demand information, are only defined in general terms such as "uniform definitions" and "standardized estimating procedures." Clearly, a more specific structure is necessary if the OIS is to become a reality.

Three other subsequent legislative acts make reference to the concept of an OIS. In each of these pieces of legislation, the OIS is referred to in broad, sweeping terms. Highlights of these legislative acts are summarized below. In each of the summaries, the specific references to the OIS or to NOICC are noted.

- Youth Employment And Demonstration Projects Act (YEDPA) Of 1977 (PL 95-93)--Section 348(c)(1) of the YEDPA legislation states that ...

  "In carrying out its responsibilities under this subsection and under section 161 of the Vocational Education Act, the National Occupational Information Coordinating Committee shall give special attention to the problems of unemployed youths."

  In subsections (B) and (D), the act provides examples of OIS related activities that NOICC should be conducting in the spirit of this legislation. These include:

  - "(B) assisting and encouraging the development of state occupational information systems, to be used in the maintenance of local job banks and job vacancy reports, accessible to local schools and including pilot programs in the use of computers to facilitate such access."

  - "(D) providing technical assistance for programs of computer on-line terminals and other facilities to utilize and implement occupational and career outlook information and projections supplied by the state employment services offices and to improve the match of youth career desires with available and anticipated labor demand."

  Both of these activities suggest that the OIS will be a computer-based system that will provide job search and occupation/career related information to youths. This concept of the OIS is fundamentally different than the concept presented in the Education Amendments of 1976. The emphasis in that legislation was that the OIS would provide occupational information to meet the needs of vocational education and manpower training program planners and administrators. The YEDPA legislation expands the functions that an OIS should serve.

- Career Education Incentive Act (PL 95-207)--In Section 12(a) of this legislation, the Commissioner of Education is charged with cooperating and consulting with NOICC in examining the "occupational information needs of individuals and organizations eligible for participation in programs assisted by this Act." The Act further instructs the Commissioner to "... furnish information to interested parties on Federal programs which gather, analyze and disseminate occupational and career information." These functions of analyzing and disseminating occupational and career information are strongly aligned with the principal purposes of the OIS. However, the target audience for these dissemination activities is different than the target audience identified in the Education Amendments which included:

  - Administrators and planners of vocational education programs
  - Administrators and planners of CETA programs
  - Employment security agency administrators
  - Research personnel
  - Employment and training and administering agencies at the Federal, State and local levels

  By contrast, the target population associated with the Career Education Incentive Act includes local education agencies, institutions of postsecondary education, and students at both secondary and postsecondary institutions. Clearly, these additional target populations broaden the scope of the information requirements and user base that the OIS must serve. Again, legislation is responsible for broadening the OIS concept.

- Comprehensive Employment And Training Act Amendments Of 1978 (CETA) (PL 95-524)--The CETA reauthorization legislation is very similar to the YEDPA legislation. In Section 315 (a)(3), the Act states:

  "The National Occupational Information Coordinating Committee, in carrying out its responsibilities under this section, shall give special attention to the labor market information needs of youth, including activities such as, but not limited to--

  (3) assisting and encouraging the development of state occupational information systems, accessible to local schools, including pilot programs in the use of computers to facilitate such access."

  Once again, legislation indicates that a computer-based OIS would be desirable particularly with regard to providing access in local schools to occupational and career information. This is further emphasized in the CETA legislation in the section of the Act that explains the potential uses of the Governor's discretionary funds. Section 105(b)(12) states:

  "(b) Governor's coordination and special services activities shall include the following--

> (12) facilitating and fostering the activities of the State Occupational Information Coordinating Committee established pursuant to section 161(b) (2) of the Vocational Education Act of 1963, with special emphasis on the systematic use of occupational information for prime sponsor planning as well as assisting and encouraging the development and use of career outlook information for individuals who are receiving rehabilitation services, students in local schools, and individuals using the services of prime sponsors and local offices of state employment security agencies."

As the preceding discussion of the legislation indicates, the concept of an OIS is presented as serving a variety of users. The legislation specifies the purposes of the OIS and identifies the major user groups. However, the legislation does little to explain the specific information that is to be used and the manner in which the OIS is to be developed and implemented. Therefore, NOICC had to devise a strategy to most effectively meet its mandate of developing and implementing the OIS.

2. NOICC STRATEGY FOR OIS DEVELOPMENT[1]

The OIS development process must be multi-faceted to meet the needs of various users and satisfy the legislative requirements described above. Of necessity, the development of an OIS will be a phased process with user's information needs being better satisfied as system capabilities and resources expand. At the same time that the OIS is being developed, the system must also be operational, providing reliable and relevant information to a variety of user groups at periodic intervals. This dual requirement, that the system be operational and developmental simultaneously, dictates that the OIS implementation plan consider two objectives, one directed towards urgent short-term operational considerations and the other towards long-term OIS development objectives. This document is oriented towards assisting SOICC Directors in achieving the short-term operational objectives established by their committees.

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[1] The basis for this section are the remarks made by Richard Dempsey at the First NOICC sponsored conference of SOICC Directors, Denver, Colorado, August 1-3, 1978.

A major factor in NOICC's strategy for OIS development and implementation was the establishment of OIS policies. The policies are indicative of the role that is foreseen for NOICC and SOICCs in the implementation of the OIS. These policies are:

- The NOICC will not become a primary data collection agency. By implication, this means that the SOICCs should not initiate any major data collection efforts on their own. To the extent possible, programs that entail the collection of data should be operated through a member agency or other appropriate organization.
- Where possible, the NOICC will use the existing programs and capabilities of member agencies in developing and implementing the OIS. Essentially this means that NOICC is adopting certain agency programs as standards for the OIS. Part of a SOICC Director's role in developing an OIS concept for his or her state will be to determine how information or data from these various programs can be integrated and systematically organized to effectively satisfy users needs. This process can be accomplished through various methods as will be discussed later in this document. Chapter V will discuss a SOICC's operational alternatives for implementing the OIS.
- SOICC will take an active role in the delivery of OIS materials. This policy clearly delineates SOICC's role as a disseminator of information. Further discussion of this function and other functions of the SOICC relative to the OIS will be discussed in Chapter IV.

NOICC will utilize three principal methods to assist the SOICCs in developing the OIS. First, NOICC will coordinate among its member agencies the adoption of programs to serve as OIS standards and will continually encourage the development, improvement, and expansion of these programs to meet OIS needs. As OIS requirements are further identified, there are certain to be gaps and deficiencies in the data presently available. NOICC and the SOICCs must encourage their member agencies to improve and expand these programs to be more responsive to OIS requirements. The second method NOICC will use is the funding of special purpose projects for developmental work on various aspects and elements of the OIS. The first series of these special purpose projects have just been funded. A list of the funded projects is included in Exhibit 1-1 on the following page.

The third method that NOICC will utilize in OIS development will be the funding of a series of developmental and implementation projects that are national in scope.

EXHIBIT 1-1
SPECIAL PURPOSE
PROJECTS FUNDED

TITLE OF PROJECT	STATE CONDUCTING PROJECT
"Operationalizing an OIS"	North Carolina
"Interstate Occupational Information System Access Model--Design and Test"	Wisconsin
"Job-related Physical Capacities Research Project"	Florida
"A Test and Demonstration of Three BLS-Proposed Occupational Employment Statistics (OES) Estimation Methods for State and Sub-State Areas in Colorado, Utah, Wyoming, and South Dakota"	Colorado
"Development of a Model Occupational Information Network to Promote Communication in the State of Oregon"	Oregon
"An Occupational Based Survey of Vocational Education Students Pre- and Post-Completion"	South Carolina
"A Career Education Training Module for Institutionalized Youth's Parent Surrogates"	District of Columbia
"Development of a Methodology to Estimate the Incremental Supply of Labor Originating from CETA Skill Training Program	Massachusetts
"To Estimate Occupational Employment and Projected Demand for the Agriculture, Domestic, Self-Employed and Unpaid Family Workers to be Used with the OES Data"	Oklahoma
"Development of Short-term Occupational Needs Indicators"	Michigan
"Development of Training Materials on Use of the SOC"	Massachusetts

These projects will be funded either through the normal competitive "Request For Proposal" (RFP) process or through competitive grant announcements to the SOICCs. One such grant announcement covering the following four interrelated projects, will be released FY 1979.

(1) "An Assessment and Documentation of OIS Requirements by User Groups"--These assessments will be papers prepared by recognized experts and will focus on the specific occupational information needs of major OIS user groups. These papers will address such issues as timing requirements of information input and output, time frames of projections, amount of occupational detail, etc.

(2) "A Concept Paper on the Design of the Occupational Information System"--This paper will synthesize the information requirements presented in the needs assessment papers into a conceptual framework of a comprehensive OIS with a description of its form, content, and operations.

(3) "Occupational Information System Handbook"--The Handbook will be an operational document explaining how an OIS can be implemented. This Handbook will follow the basic structure established by the concept paper and will contain technical information describing each information/data service and its advantages and limitations. The Handbook will contain OIS terms, definitions, and classifications. The Handbook will be a multi-volume document presented in looseleaf binders to facilitate modifications and additions to the document.

(4) "OIS Orientation and Training Package"--This package will consist of a structured training program together with support materials. The package will be tailored to meet the training requirements of various user groups and the support materials will be designed to present OIS topics in differing degrees of detail. This package can be used for presentations, workshops, and as a source of OIS written materials.

To support the OIS development process, NOICC will establish two advisory resource groups that will periodically be requested to assist NOICC in assessing a specific facet of OIS development and implementation. The first resource group is comprised of SOICC Directors and consists of six sub-committees, each one concentrating on a certain aspect, component, or process associated with the OIS. The second resource group will consist of experts from NOICC member agencies and other appropriate Federal government agencies. This resource group will periodically convene to address issues related to an OIS from a national perspective. NOICC will rely heavily on the advice, consultation, and technical support of both advisory groups for OIS development and implementation. The two resource groups have been helpful to NOICC in the development of this document.

3. CONTENTS OF THIS DOCUMENT

Following this introduction there are five chapters, each addressing a different aspect of the OIS. Chapter II presents an overview of the OIS concept and discusses reasons why an OIS is needed and problems that exist in developing an OIS. In addition, Chapter II identifies the various users that an OIS must serve, discusses the NOICC/SOICC organizational structure and its appropriateness for OIS development, and defines the OIS, including a discussion of the occupational, geographic, and time reference dimensions of the system. Finally, Chapter II introduces the components of an OIS in terms of the data categories and the analytical procedure that are part of the system's structure.

Chapter III further explains the structure of the OIS including an in-depth discussion of required data categories and sub-categories. Within each data subcategory, the relevant data sources and their respective limitations are identified. Complete descriptions of the data sources; occupational, industrial, and instructional classification structures; and cross-coding mechanisms, are included in Appendices A, B, and C respectively. These descriptions amplify the material presented in Chapter III. An important aspect of this chapter is the discussion of the analytical procedure for interfacing occupational supply and demand data.

Chapter IV discusses the delivery of occupational information with particular emphasis on establishing a user orientation in the development of OIS products and services, developing products that satisfy certain criteria, and providing education and training to support the OIS products and services. Chapter V explores the SOICC's operational alternatives for implementing the OIS and emphasizes the need for the

SOICC Directors to be cognizant of the political and resource constraints within their respective States. Chapter VI summarizes the factors that SOICC Directors must consider in developing a strategy for implementing the OIS in their individual States. Lastly, Appendix D contains a set of OIS development aids that can be used in training workshops conducted by SOICCs.

II. OVERVIEW OF THE OIS CONCEPT

The need for occupational information has grown dramatically over the last fifteen years. The successful delivery of services related to the development of human resources is critically dependent upon access to reliable, timely, and detailed information about occupations that can be systematized into an integrated, comprehensive network. Vocational educators, planners of Federally funded education and training programs, persons responsible for assisting individuals to find jobs, trainers in industry, guidance counselors and a variety of others have increasingly sought occupational information to carry out their respective functions and responsibilities. This chapter explores some of the historical background and problems associated with the development and utilization of reliable occupational data and then presents a conceptual definition of an OIS. This conceptual definition provides States with the latitude needed to implement an OIS that is responsive to the users within each State. The OIS should not duplicate services already in existence, but should identify and fulfill the unmet information and data requirements.

1. THE NEED FOR AN OCCUPATIONAL INFORMATION SYSTEM

There have been several inherent problems in the development and utilization of reliable occupational information for program planning and career counseling. From the perspective of vocational education and manpower training program administrators and planners, occupational data for planning purposes must be available with the proper geographic specificity and time period reference. Users have complained that data are provided in a hard-to-utilize format and that data are unavailable at the necessary points in their planning cycles. The problem is further compounded because decision makers are sometimes unaware of data that exist and unsure in the use of the data with which they are familiar. As a result, training and education programs are often not completely relevant to the occupational demand within a labor market. Administrators and planners are becoming increasingly aware of this problem and are beginning to use existing data and to request more and better data from data producers.

Data producers are being confronted with increasing demands for data and information. Limited by budget constraints and insufficient personnel resources, the data producers are experiencing difficulty in conducting programs or maintaining data collection systems that are responsive to the data and information needs of users. Data collection and analysis are time-consuming procedures and often require computer support, which may not be available. Data production is further complicated by the varying degrees of occupational specificity required by different users. In short, the development of reliable, timely occupational data is not a simple task.

Three reports related to this problem further elaborate upon the complexities associated with developing and utilizing occupational information. These reports are:

- Manpower Data And Vocational Education--A National Study of Availability and Use
- GAO Audit of Vocational Education--"What Is The Role Of Federal Assistance For Vocational Education?"; December 31, 1974, Controller General' Report to the Congress
- House Report 94-1085 covering The Vocational Education and National Institute of Education Amendments of 1976

Each report provides valuable insights into the dimensions of data development and usage problems. Highlights and conclusions of each of these reports are summarized in the following sections.

(1) Manpower Data And Vocational Education--A National Study of Availability and Use

This study was conducted by the Center for Occupational Education at North Carolina State University and published in 1975. The principal authors of the final report were D.W. Drewes and D.S. Katz. The findings and recommendations of the study are based largely on the results of visits to ten States, one in each of the ten Federal regions. In addition to interviewing State and local representatives of both the secondary and postsecondary vocational education community, State and local employees of the State Employment Security Agency were interviewed. Regional personnel from the Manpower Administration, the Bureau of Labor Statistics, and the U.S. Office of Education were also interviewed.

One of the summary findings of the study was that there was little linkage between instructional programs being offered and the occupations that manpower data indicated were in future demand. In fact, many local vocational eductional administrators were unaware of published manpower data available from State employment security offices and from the Bureau of Labor Statistics. Additional findings, indicative of the lack of communication and coordination between data users and data producers include:

- "None of the ten States require the local educational agencies to use specific data sources to determine local manpower needs."
- "There is a tendency for both State and local vocational education agency staff to distrust published manpower data."
- "All ten States encourage the local educational agencies to conduct their own assessment of manpower needs."
- "Once a vocational education program is installed, manpower projections play a minor role in future programmatic decisions."
- "The statistical orientation of most employment security and BLS manpower projections inhibits their use."
- "Few State employment security agencies are financially able to provide special data compilations in response to specific requests from vocational education program planners."
- "No categorical funds are made available to BLS to prepare special data tabulations for use by vocational educators."

The report was very comprehensive in defining the nature of the problems that exist between data users and data producers.

(2) GAO Audit Of Vocational Education--"What Is The Role Of Federal Assistance For Vocational Education?"; December 31, 1974, Controller General's Report to the Congress

The General Accounting Office (GAO) completed a review of Vocational Education operations during 1974 and testified before the House of Representatives Committee on Education and Labor during the hearings relevant to the Vocational Education Amendments of 1976. The GAO reported to the Committee:

"In the States we visited, vocational educators both at State and local levels had not given adequate consideration to labor market factors. Labor market demand and supply had not been fully assessed, and there was no assurance that the training provided corresponded with manpower needs."

The GAO further found

"... that enrollments in programs supported by the Vocational Education Act over the past decade did not indicate a shift in training from traditional to new and emerging job opportunities. Even though studies financed by HEW have shown that much of the present enrollment in courses is concentrated in programs with only a peripheral relationship to labor market needs, GAO found only marginal efforts being made by the Office of Education to review the adequacy of vocational offerings in relation to availability of jobs."

In short, GAO found that program planning in vocational education was not responsive to the changes in the occupational needs of the labor market. The Administration's response to the audit generally concurred with the audit's findings related to manpower data.

(3) House Of Representatives Report (HR) 94-1085

The House of Representatives Report 94-1085 summarizes the testimony presented before the House Committee on Education and Labor pertaining to the Vocational Education and National Institute of Education Amendments of 1976. In addition to discussing the two reports highlighted above, HR 94-1085 notes:

"With regard to the evaluation of programs, the greatest need perceived almost universally by witnesses, and the greatest failing, was for follow-up studies showing the job placement and satisfaction of program completers and leavers."

Establishing this link between education and work is critical and emphasizes the need for improved planning with regard to both vocational education and manpower training programs. Improved planning can result from reliable occupational supply and demand data. The House Report proposes two legislative amendments, the first being the establishment of NOICC and the SOICCs, and the second being the development of an occupational information system in each state "to improve the planning and operation of vocational education and manpower programs." There are two reasons offered by the Committee for proposing these amendments to the Vocational Education Act of 1963.

"First, it is hoped that these amendments will be another way of helping to bring together the vocational education program administrators and the manpower program administrators. Both programs have many of the same problems and needs, including a need for current occupational supply and demand data; and since the programs are operated so separately in so many States, the Committee bill tries to foster linkages between the two whereever possible.

The second purpose is clearly to develop both occupational supply and demand data and to make this data readily available so that vocational courses which are more relevant to realistic job opportunities can be offered."

The Committee summarized their position with the following statement:

> "If education and training are ever to be related to current and prospective occupational needs, a single occupational coordinating system is of paramount importance; and the Committee hopes that these amendments will lead to the prompt development of such a system."

The report clearly establishes that the occupational information needs of certain user groups are not being adequately satisfied. The organizations and individuals that would benefit from the development of an OIS is diverse and each must be given careful consideration in the development and implementation of an OIS.

2. USERS OF AN OCCUPATIONAL INFORMATION SYSTEM

The potential users of an OIS can be categorized in three ways:

(1) Direct participants in the labor market

(2) Labor market intermediaries, such as persons who assist others in preparing for the world of work

(3) Planners and administrators, such as persons who develop and implement job-related education and training programs

Exhibit 2-1, on the following page, provides further description of each user category and provides examples of the specific types of individuals in each user category.

The NOICC and SOICC organizational structure has been designed to establish a formal coordinating agent between agencies that are producers of occupational information and agencies, organizations, and individuals who use occupational information or data as part of their decision-making process. The success of NOICC and SOICC in fulfilling this coordinative role will in large measure be determined by how well the information needs of the various user groups are satisfied by an occupational information network.

3. NOICC/SOICC STRUCTURE AND ORGANIZATIONAL INTERRELATIONSHIPS

By law, the Federal agencies that are members of NOICC include:

- Office of Education (OE), Department of Health, Education, and Welfare

EXHIBIT 2-1
OIS USERS

CATEGORIES	DIRECT PARTICIPANTS IN THE LABOR MARKET	LABOR MARKET INTERMEDIARIES	PLANNERS AND ADMINISTRATORS
USES	. Job search activities . Career decision making	. Career counseling . Job placement . Course development	. Program planning . Policy decisions
USERS	(1) Youths (2) Secondary and post-secondary students (3) Unemployed (4) Incarcerated (5) New entrants to the job market (6) Individuals who need information about career choices (7) Employers (8) Military returnees	(1) Teachers (2) Vocational counselors (3) Guidance counselors (4) Job placement specialists (5) Employment service	(1) Vocational education planners and administrators (2) CETA planners and administrators (3) Managers of human resource development programs (4) Policy decision makers

- National Center for Education Statistics (NCES), Department of Health, Education, and Welfare
- Employment and Training Administration (ETA), Department of Labor
- Bureau of Labor Statistics (BLS), Department of Labor

A Technical Steering Group (TSG) has been established to approve the operating and funding decisions of NOICC. The TSG is comprised of a senior level administrator from each of the above four agencies. The Rehabilitation Services Agency (RSA) of the Department of Health, Education, and Welfare has been requested to provide a non-voting representative on the TSG. This representative assures that the needs of the vocational rehabilitation community are considered in the development of NOICC's operating strategy.

The Education Amendments of 1976 also mandate the statutory members of the SOICC. The following agencies are included:

- State Vocational Education Agency
- State Employment Security Agency
- State Manpower Services Council[2]
- Vocational Rehabilitation Agency

Although these are the only agencies that may vote on fiscal matters of the SOICC, many Committees have permitted appropriate non-voting agencies or organizations to participate in an expanded SOICC organization.

The regional offices of DOL and DHEW are not formally included in the NOICC/SOICC organizational structure so as not to affect normal member agencies' reporting channels. However, they are programatically involved in the effort because their Federal and State agency counterparts are included in NOICC and SOICC respectively.

The NOICC/SOICC structure was created to fill an organizational and informational void and, as such, can be utilized to facilitate and coordinate the development of an OIS which will disseminate the needed information. A diagram of the

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[2] The new CETA legislation now refers to the State Manpower Services Council as the State Employment and Training Council.

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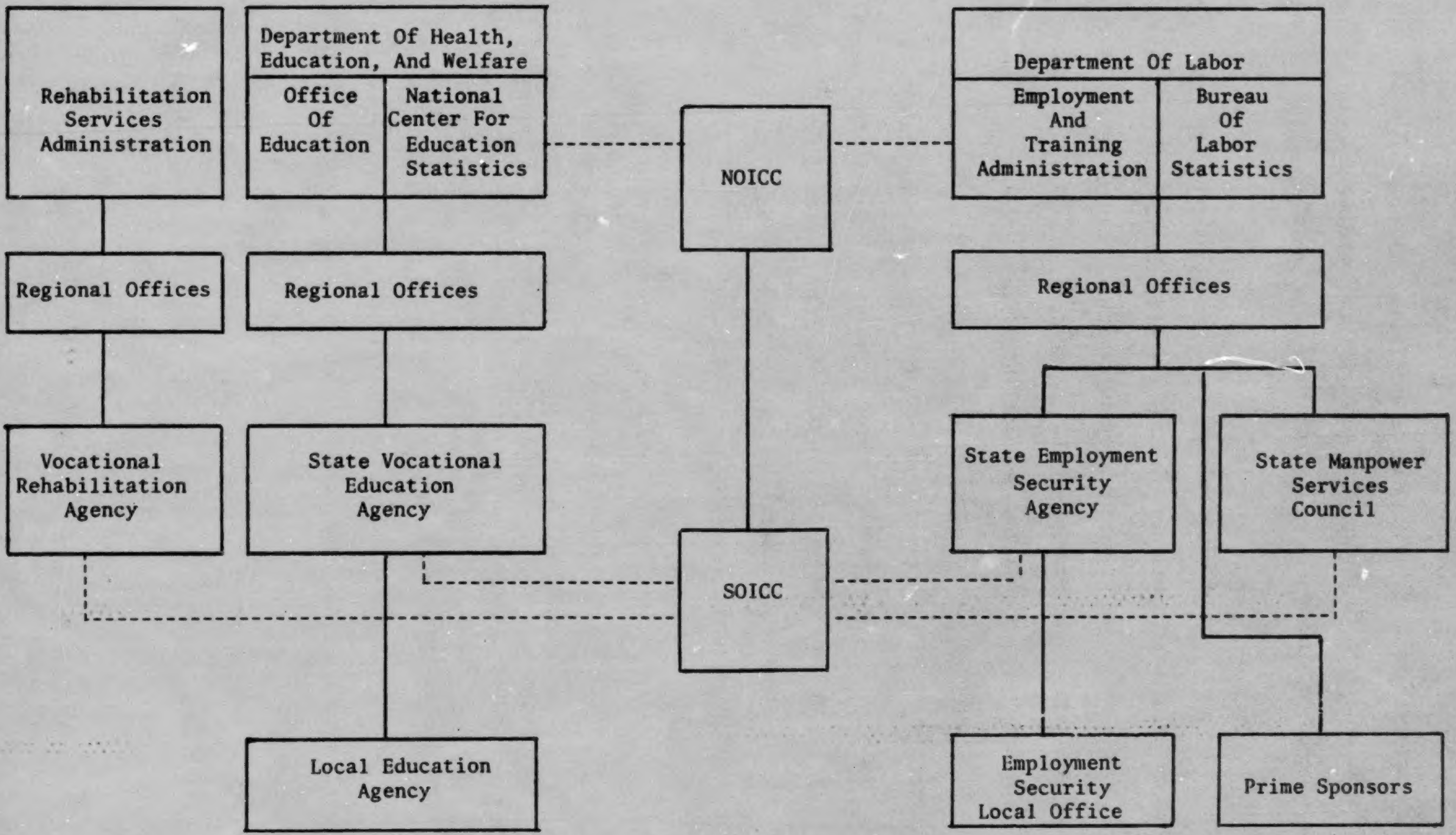
NOICC/SOICC structure, which depicts the organizational interrelationships of the agencies involved, is shown in Exhibit 2-2 on the following page.

To achieve their mandate, NOICC and the SOICCs must use their member agencies to improve the quality of data that will be contained in an occupational information system. NOICC and the SOICCs should function as focal points to insure that when data gaps are identified, mechanisms are created to fill these gaps. These mechanisms might be a service, survey, or a data collection program performed by a member agency or other appropriate organization. Alternatively, NOICC and a SOICC could bring together one or more agencies to modify or expand an existing data system. When appropriate, NOICC and the SOICCs should attempt to influence their member agencies to modify relevant programs and systems to improve the quality of the information in an OIS. NOICC and the SOICCs should be the initiators of activity that results in Federal and State agency actions to improve existing programs and systems that provide input for the OIS.

4. OCCUPATIONAL INFORMATION SYSTEM DEFINED

An information system may be thought of as an organization or network for the collection and/or distribution of information. For NOICC/SOICC purposes, the information being collected and distributed is related to occupations. An occupational information system should be conceived in generic terms--that is, there are many similar yet distinct methods of structuring the organization or network that will satisfy the systematic functions of collecting and/or distributing occupational information. Regardless of the OIS operational environment that is established, the basic purpose of every State's system will be the same. That purpose, simply stated, is to provide to users the occupationally related information necessary for decision making. Direct participants in the labor market make decisions about a specific job, a general occupational field, or a career path. Labor market intermediaries

EXHIBIT 2-2
NOICC/SOICC ORGANIZATIONAL
INTERRELATIONSHIPS


Rehabilitation Services Administration
Department Of Health, Education, And Welfare
Office Of Education
National Center For Education Statistics
NOICC
Department Of Labor
Employment And Training Administration
Bureau Of Labor Statistics
Regional Offices
Regional Offices
Regional Offices
Vocational Rehabilitation Agency
State Vocational Education Agency
State Employment Security Agency
State Manpower Services Council
SOICC
Local Education Agency
Employment Security Local Office
Prime Sponsors

assist direct participants in making these decisions. Lastly, planners and administrators make decisions regarding vocational programs and manpower programs that should be offered to students or trainees to maximize their potential job opportunities.

An OIS, therefore, is an organization or network that provides certain types of information related to occupations or to the training relevant for occupations. Basically, there are two major uses of the information included in the OIS. Exhibit 2-3, on the following page, summarizes the two major uses and presents the occupational information base necessary to support these uses.

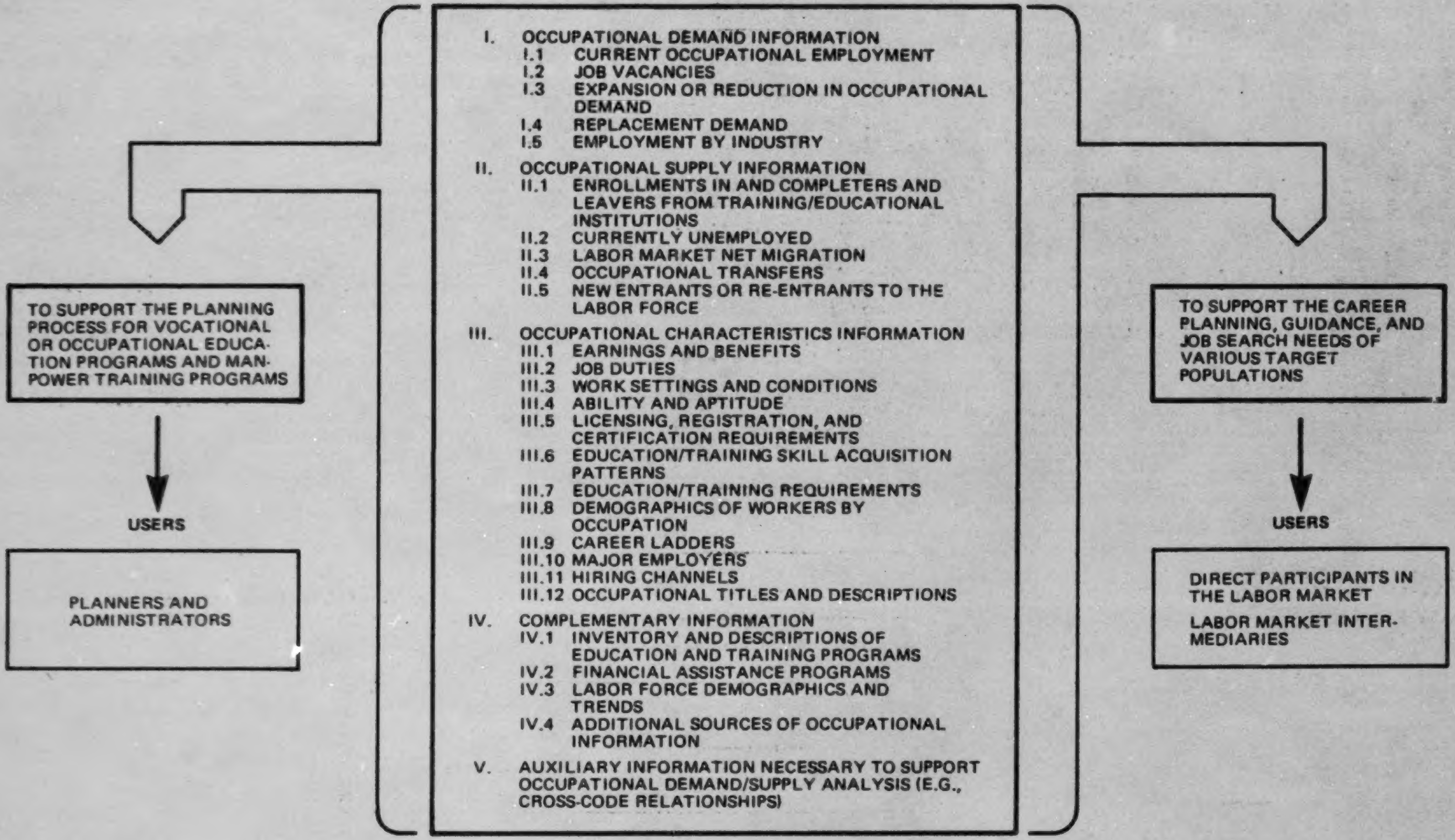
There is no prescribed operational manner in which OIS information should be made available. An OIS might range from an information clearinghouse to a comprehensive computer-based information system. Potential operational alternatives for a SOICC to use in implementing an OIS are discussed in greater detail in Chapter V. Regardless of the operational alternative selected for implementation, the OIS must address two very important functions:

- First, the OIS must be concerned with the delivery of information to diverse users. Perhaps the most important delivery consideration is the methods by which information will be presented to the various user groups. This topic is addressed in detail in Chapter IV.
- Second, and equally important, an integral function of the OIS is to provide training and technical assistance to various users in the interpretation and usage of the information provided by or through the OIS network. This function must include explanations of how the data can potentially be used in the planning process and the limitations of the data that users should recognize.

There are certain levels of detail or specificity necessary within an OIS to adequately satisfy the various user populations. NOICC has established certain policies that are applicable in defining the OIS levels of detail or specificity (see the Federal Register of July 19, 1978 as a reference). In particular, there are three dimensions of the OIS for which the level of specificity should be considered:

EXHIBIT 2-3

OIS INFORMATION BASE AND THE TWO MAJOR USES OF OCCUPATIONAL INFORMATION



OCCUPATIONAL INFORMATION BASE

- I. OCCUPATIONAL DEMAND INFORMATION
  - I.1 CURRENT OCCUPATIONAL EMPLOYMENT
  - I.2 JOB VACANCIES
  - I.3 EXPANSION OR REDUCTION IN OCCUPATIONAL DEMAND
  - I.4 REPLACEMENT DEMAND
  - I.5 EMPLOYMENT BY INDUSTRY
- II. OCCUPATIONAL SUPPLY INFORMATION
  - II.1 ENROLLMENTS IN AND COMPLETERS AND LEAVERS FROM TRAINING/EDUCATIONAL INSTITUTIONS
  - II.2 CURRENTLY UNEMPLOYED
  - II.3 LABOR MARKET NET MIGRATION
  - II.4 OCCUPATIONAL TRANSFERS
  - II.5 NEW ENTRANTS OR RE-ENTRANTS TO THE LABOR FORCE
- III. OCCUPATIONAL CHARACTERISTICS INFORMATION
  - III.1 EARNINGS AND BENEFITS
  - III.2 JOB DUTIES
  - III.3 WORK SETTINGS AND CONDITIONS
  - III.4 ABILITY AND APTITUDE
  - III.5 LICENSING, REGISTRATION, AND CERTIFICATION REQUIREMENTS
  - III.6 EDUCATION/TRAINING SKILL ACQUISITION PATTERNS
  - III.7 EDUCATION/TRAINING REQUIREMENTS
  - III.8 DEMOGRAPHICS OF WORKERS BY OCCUPATION
  - III.9 CAREER LADDERS
  - III.10 MAJOR EMPLOYERS
  - III.11 HIRING CHANNELS
  - III.12 OCCUPATIONAL TITLES AND DESCRIPTIONS
- IV. COMPLEMENTARY INFORMATION
  - IV.1 INVENTORY AND DESCRIPTIONS OF EDUCATION AND TRAINING PROGRAMS
  - IV.2 FINANCIAL ASSISTANCE PROGRAMS
  - IV.3 LABOR FORCE DEMOGRAPHICS AND TRENDS
  - IV.4 ADDITIONAL SOURCES OF OCCUPATIONAL INFORMATION
- V. AUXILIARY INFORMATION NECESSARY TO SUPPORT OCCUPATIONAL DEMAND/SUPPLY ANALYSIS (E.G., CROSS-CODE RELATIONSHIPS)

TO SUPPORT THE PLANNING PROCESS FOR VOCATIONAL OR OCCUPATIONAL EDUCATION PROGRAMS AND MANPOWER TRAINING PROGRAMS

USERS

PLANNERS AND ADMINISTRATORS

TO SUPPORT THE CAREER PLANNING, GUIDANCE, AND JOB SEARCH NEEDS OF VARIOUS TARGET POPULATIONS

USERS

DIRECT PARTICIPANTS IN THE LABOR MARKET

LABOR MARKET INTERMEDIARIES

- Occupational detail
- Geographic detail
- Time reference period

Each of these dimensions will be discussed separately in the sections that follow.

(1) Occupational Detail

There are presently four occupational classification structures and two instructional discipline taxonomies that are being utilized to categorize either occupations or educational programs. These include:

- Dictionary of Occupational Titles (DOT) Codes, Fourth Edition
- Occupational Employment Statistics (OES) Survey and Matrix Codes
- Standard Occupational Classification (SOC) Codes
- Census Occupational Codes
- U.S. Office of Education (USOE) Codes
- Higher Education General Information Survey (HEGIS) Codes

NOICC has adopted the Standard Occupational Classification (SOC) Manual of the Office of Federal Statistical Policy and Standards, U.S. Department of Commerce, as a standard overall occupational classification system. To date, however, the SOC has yet to be used for any data collection or statistical analysis efforts. The SOC is fully compatible with the DOT Fourth Edition and there is an Index to the SOC that provides a cross reference between the DOT occupational titles and codes and the SOC titles and codes. Since the OES survey and matrix codes are also compatible with the DOT, the SOC manual is therefore compatible with the OES classification structures.

In general, the occupational level of detail reflected in an OIS must be sufficient to accomplish two objectives:

- To reflect the occupational composition of each labor market area, SMSA, and State
- To meet the needs of users requiring data in the greatest detail

The occupational detail in an OIS should be sufficient to identify all occupations that have different training requirements. On a continuum of detail with regard to occupations, the various occupational classification structures compare as follows:

Greatest Detail	Moderate Detail		Least Detail
DOT, Fourth Edition (20,000)	OES Survey (1,700)	SOC (660)	Census (441)

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The above diagram shows the approximate number of occupational titles included in each structure. In summary, if the occupational detail in an OIS can satisfy the needs of those users requiring the greatest detail, then data can always be aggregated to satisfy the needs of users who require less detailed data. The only constraint on the occupational level of detail in an OIS is that certain member agency programs, which will provide input to the OIS, may require a certain level of internal detail to satisfy technical considerations in assuring the development of accurate and reliable occupational data (e.g., the Occupational Employment Statistics (OES) program).

(2) Geographic Detail

NOICC has adopted the labor market area or labor area concept, as defined by the Department of Labor, as the basic geographic subdivision for evelopment and use of occupational information. In the Employment and Training Administration's publication Directory Of Important Labor Areas, the labor area is defined as follows:

> "... a geographic area consisting of a central city or cities and surrounding territory within commuting distance. Conceptually, it is an economically integrated unit within which workers may readily change jobs without changing their place of residence. The labor area takes its name from the central city (or cities), but may include one or more entire counties, except in New England where towns are considered the major geographical units."

Generally, the labor market area is the most appropriate geographical unit for the analysis of occupational supply and demand data. Accordingly, the labor market area should be the smallest geographical sub-division for which data are available in an OIS. Other geographic sub-divisions for which data may be available in an OIS include SMSAs, the State, and the Nation.

NOICC and the SOICCs should be aware of the sub-State areas known as planning or administrative districts that are set up for planning/ budgeting purposes in various States. Although these areas may be useful from a State perspective, the NOICC "labor market area" policy has been developed based on the availability of data from various programs that NOICC policy has established as standards. In general, these programs utilize the labor market area or SMSA concept.

(3) Time Reference Period Detail

To be effective an OIS will need to provide data that encompasses three basic time reference periods:

- Historical information
- Current information
- Short- and long-term projections

Vocational education planners, high school guidance counselors, and high school students, for example, tend to need long-term information. Job seekers, on the other hand, need current information to find suitable work. Planners of short-term training programs need short-term projections to make effective program decisions. Administrators and developers of social economic policies, as well as technicians developing projections, require historical data for analytical purposes.

The timeliness of information availability in the OIS is critical. CETA, for example, includes programs designed to correct short-term imbalances in the labor market. CETA programs, Title II and VI, are funded for only one year at a time and thus require short-term projections for planning purposes. Information for the CETA planning cycle is required in early spring to satisfy the fiscal year program plan requirements. Vocational education, on the other hand, has a longer planning period in that vocational education programs can adapt to long-term occupational trends. The long-term projections needed for vocational education planning are required at the beginning of the calendar year for use in the development of the Vocational Education Annual Plan. Job seekers require current labor market information in the form of specific job vacancy information. In short, different users will require information with different time reference periods, and the OIS must be responsive to these needs.

* * * * *

In summary, the OIS can be described as an information system that:

- Utilizes data collection procedures established by certain Federally-administered and State-conducted programs for input information.
- Applies standardized estimating procedures as established by the various Federal programs for ascertaining current information and developing short-term and long-term projections.
- Relies on uniform definitions as presented (when published) in NOICC's "Glossary of Terms and Definitions Used in an Occupational Information Program" for inter-program standardization.
- Provides data that supports the planning process for vocational or occupational education programs and manpower training programs.
- Provides data or information that supports the career planning, guidance, and job search needs of various target populations.
- Delivers the necessary occupationally related information to widely divergent user populations in appropriate formats and within the requisite time frames.

5. PROBLEMS IN DEVELOPING AN OCCUPATIONAL INFORMATION SYSTEM

As noted in Chapter I, NOICC has adopted a policy of using existing programs and capabilities of member agencies in developing and implementing the OIS. In utilizing the data collected through programs conducted by member agencies, SOICCs must realize that the data may not be collected primarily for usage in an occupational information system. Usually some data collection programs are undertaken either for internal management purposes, to satisfy external funding or reporting requirements of the Federal Government, or to accommodate an agency mandate. In any of these cases, the data collected must serve a primary function that is outside the realm of an OIS.

In developing an OIS, subsets of data collected through various member agency programs will be utilized. This lack of direct control over data collection activities could adversely impact the development of the OIS. SOICC must function in its coordinative capacity to influence its member agencies to provide data that can be meaningfully integrated into an effective system or network of occupationally related information and data. The OIS will be a unique system in that no single organizational structure is responsible for various system functions such as data collection, data analysis, report generation, and dissemination of information. Instead, the situation dictates that multiple agencies may be responsible for one or more of these system functions.

As a result of these various organizational and programmatic constraints, the development of an OIS will be a complex process. NOICC and the SOICCs must facilitate this process as they are responsible for coordinating the available resources to assure the implementation of the OIS.

6. BASIC COMPONENTS OF AN OIS

The detailed structure of an OIS will be discussed in Chapter III. The purpose of this section is to introduce the components of an OIS. Basically, the components of an OIS can be classified in two ways--data categories and analytical procedure(s).

Initially, an OIS will contain four data categories and one analytical procedure. Exhibit 2-4, on the following page, summarizes the components of an OIS.

NOICC has adopted certain programs and data sources as standards to be utilized in the development of an OIS. Although these programs and data sources are discussed in further detail in Chapter III and in the Appendices, they will be briefly mentioned here because they do represent NOICC policy. Specific programs and systems are identified as sources of occupational demand and supply data.

- Occupational Demand--NOICC adopts the Occupational Employment Statistics program of the Department of Labor as the standard principal source of current and projected occupational employment data at the local, State, and national level.

- Occupational Supply--NOICC, in development of the occupational supply model of the OIS, will utilize as principal input, data available from the following data and information sources:[3]

  1. Vocational Education Data System (VEDS)
  2. Higher Education General Information Survey (HEGIS)
  3. State and National Apprenticeship System (SNAPS)
  4. Comprehensive Employment and Training Act (CETA) Reporting
  5. U.S. Employment Service (USES)
  6. Unemployment Insurance Service (UIS)

- Also, NOICC adopts the career information system of the Department of Labor as the standard concept in encouraging the development and use of occupational information for career choice and job search purposes.

These programs and data sources do not represent all of the possible data sources that can be used in the OIS nor are they without limitations themselves. The limitations of the above data sources and programs and the additional data sources that can be included in an OIS are discussed in relation to the detailed structure of the OIS in the next chapter. NOICC is currently in the process of developing comprehensive

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[3] NOICC is considering revising their policy statement to include the following two additional information sources for occupational supply:

(1) Noncollegiate Postsecondary School Survey
(2) Vocational Rehabilitation Management Information System

EXHIBIT 2-4
COMPONENTS OF AN OIS

OIS COMPONENTS

DATA CATEGORIES

I. Occupational Demand

This component contains information pertaining to the number of job opportunities in specific occupations within a specific geographic area over a given period of time.

II. Occupational Supply

This component contains information pertaining to the number of individuals who are working, seeking work, or may be seeking work in specific occupations within a specific geographic area over a given period of time.

III. Occupational Characteristics

This component contains information pertaining to the requirements for working in specific occupations and general descriptions of the occupations (e.g., wage information related to specific occupations). Information is also provided on the characteristics of individuals who work in a specific occupation.

IV. Complementary Information

This component contains the miscellaneous information necessary to support either the planning, career guidance, or placement process. States will be permitted wide-ranging latitude to include whatever data or information is deemed necessary to insure the responsiveness of the OIS within the State.

ANALYTICAL PROCEDURE(s)

I. Supply/Demand Interface

This component contains the information necessary to relate occupational supply data to occupational demand data and to conduct any necessary analysis; it also identifies, explains, and translates classification and coding systems.

cross-classification materials to support the supply/demand interface process. Administrative Memorandum 78-11 advised SOICCs regarding the development of these materials.

7. THE SOICC ROLE IN THE DEVELOPMENT OF AN OIS

The SOICC has the responsibility of coordinating the development and implementation of the OIS at the State level. To effectively accomplish this the SOICC will need the following functional capabilities:

- An understanding of the needs of the users and the extent to which these needs are being satisfied.
- An understanding of the information and data sources available within the State and the limitations of these sources.
- A method of informing users regarding the availability and potential uses of information or data.
- A method of improving the information sources to better meet user needs.

The SOICC Director and his or her Committee, in consideration of existing occupational information resources and funding and staffing constraints, should determine what should be initiated toward the development or implementation of an OIS. These decisions become the foundation of an OIS action plan for the State.

III. STRUCTURE OF AN OIS

An OIS can be described from three viewpoints: (1) its structure, (2) the sources from which the data are derived, and (3) the manner in which the data will be used. A discussion of the structure will be presented in the narrative of this chapter. The data source information will be presented by a series of exhibits. Also, OIS data sources are discussed in detail in Appendices A, B, and C. A detailed discussion of the uses of OIS data will be presented in a subsequent document, the OIS Handbook.

The structure of an OIS is comprised of five basic components, four of which are data categories and one an analytical procedure (see Exhibit 2-4). The four data categories are: (1) occupational demand, (2) occupational supply, (3) occupational characteristics, and (4) complementary information. The fifth component involves a procedure for interfacing and analyzing occupational supply and demand data. Presently, there is no single established procedure to accomplish this, but a variety of methods are employed by the States. These five components will provide sufficient data to satisfy the basic information needs of most user groups. This chapter describes each OIS component and identifies their respective data sources. An exhibit, following the discussion of each component, summarizes the data categories and appropriate data sources. If you are not familiar with Federal/State data collection and statistical programs, occupational and educational classification systems, or cross-coding procedures, it is recommended that you review Appendices A, B, and C. This chapter is not intended to be a procedural manual for OIS development and implementation, but rather is designed to provide an overview of OIS concepts and data sources. The data sources discussed as part of each data category may not completely satisfy the information needs for that data category; however, the data sources cited are the most relevant known sources for the data categories.

1. OCCUPATIONAL DEMAND

Occupational demand can be defined as the number of job opportunities in a specific occupation within a defined geographical area at a given point in time. More simply, current occupational demand is the number of jobs presently filled in a specific occupation plus the number of job vacancies that exist in that occupation. For effective planning, it is necessary to project occupational demand for future periods. This means determining the number of persons needed to fill all job openings in an occupation at some future time. For an OIS it is necessary to have both current and projected occupational demand data. To estimate projected occupational demand, one must utilize data on employment by industry.

1.1 CURRENT OCCUPATIONAL DEMAND

Current occupational demand for qualified workers is composed of two elements: (1) the number of jobs presently filled in an occupation and (2) the number of job vacancies.

1.11 Current Occupational Employment--Current occupational employment refers to the number of jobs presently filled in a specific occupation. This information is used as a basis for projecting future employment levels and is useful for comparing the rates of growth or decline of various occupations. Data on current occupational employment can be obtained from the following sources:

- Census--Every ten years, the Department of Commerce, Bureau of the Census conducts a census survey of population. These census surveys are used to estimate the number of persons working in specific occupations. Census-based estimates of current employment levels have the following limitations:
  - Occupational titles are supplied by the interviewee and thus are subject to error and inaccuracies.
  - Occupational titles must be translated to census occupational classifications and may be improperly coded.
  - Persons who hold multiple jobs are counted only once.

  - Census occupational classifications provide inadequate detail for certain applications.

  - Census information is not timely.

  - Certain census data are based on samples too small to produce reliable estimates for specific geographical areas.

- Occupational Employment Statistics Program (Survey Component)--The survey component of the OES Program is used as a basis for estimating the number of jobs presently filled in specific occupations by industry groupings. Occupational employment estimates are produced through the industry-occupation matrix technique. Two types of matrices are produced. The first type is based on the OES survey, an employer-based survey that is carried out on a 3-year cycle. The second type is based for the most part on updated decennial census data and is produced for those States that do not have a sufficient base of OES survey data. It is expected that the OES survey-based matrix will entirely replace the older census-based matrix within a few years. The limitations of the census-based matrix are similar to the census itself. OES survey-based estimates of current occupational employment are subject to the following limitations:

  - Geographic detail is currently limited to selected SMSAs and statewide.

  - Self-employed and agricultural workers are not covered by the OES survey although indirect estimates can be made utilizing census data.

  - Not all States participate in the OES survey.

  - All industries are not covered by the OES survey.

1.12 Job Vacancies--Job vacancies refer to actual jobs which are immediately available for filling, and for which an employer is actively trying to find or recruit workers. Information on current job vacancies is critical for effective operation of employment and training programs. Job vacancies information is needed on a local labor market basis because users are concerned with immediate job opportunities for themselves or their clients. Job vacancies information can be obtained from the following sources:

- Employment Security Automated Reporting System (ESARS)--ESARS lists current job openings registered with the local Employment Security office by DOT code and by industry code. The data can be aggregated to a labor market area level. ESARS highlights hard-to-fill openings (unfilled 30 days or more). ESARS as a data source has the following limitations:

- Reflects only job openings reported to ES local offices (research indicates that these openings represent a relatively small share of total job vacancies)
- Occupational coding detail is sometimes inconsistent (i.e., two-, six-, and nine-digit DOT codes are used)
- Procedures for assigning a DOT code to a specific job opening vary among Employment Security local offices

. Employment Service Job Bank--Job Bank provides a computer listing of all unfilled job openings on a given day that are listed with ES local offices. For each job, information is available on job location, occupational title and code, wage rate, employer, and job requirements. Job Bank has the following limitations:

- Only reflects job openings reported to ES local offices.
- Distribution of Job Bank information with employer's name attached is sometimes prevented by State disclosure laws.
- Not all areas and States have the Job Bank program.
- Procedures for assigning a DOT code to a specific job opening vary among Employment Security local offices.

. Job Flo--A summary, available monthly on microfiche, provides job openings and wage information on frequently listed occupations by geographic area. National data, listed by Job Bank district and State, includes total openings in all frequently listed occupations. Job Flo has the following limitations:

- Only reflects job openings reported to ES local offices.
- Data are limited to those States or sub-State areas which have Job Bank.

1.2 PROJECTED OCCUPATIONAL DEMAND

Projections of future occupational demand are essential for planning vocational education and training programs and choosing career paths. Projecting occupational demand involves analyzing two major factors: (1) the overall expansion or reduction in the level of occupational demand and (2) replacement demand which is the number of positions that will open because of workers leaving the occupation.

1.21 Expansion Or Reduction In Occupational Demand--Expansion or reduction in occupational demand can be caused by changes in business organization, union/management agreements, government priorities, natural events, economic conditions, and technological change. To project the demand for an occupation at some future time it is necessary to know the number of persons currently employed in the occupation. This current occupational employment data is available from the Industry/Occupation Matrix based on either census data or Occupational Employment Statistics survey data.

These surveys enable one to approximate the percent distribution of occupational employment by industry. These percentages are adjusted to reflect expected change over time and are multiplied by projections of total industry employment to provide estimates of future employment by occupation. Sources of data for projecting expansion or reduction in occupational demand include:

- Occupational Employment Statistics Program (Industry/Occupation Matrix and Projections Components)--The OES program uses an industry-occupation matrix as the core of its projection system. This matrix shows staffing patterns in terms of the percentage distribution of occupational employment within a given industry. These staffing patterns are multiplied by projected industry employment levels to obtain projected occupational employment by industry. These results are summed across industries to derive total projected employment by occupation. The OES program as a source of occupational employment projections has the following limitations:

    - Projections are based on data from different sources which differ in employment concept and definition.

    - Development of an Integrated I/O Matrix (based on both census and OES survey data) requires complex data processing that can only be performed by BLS in Washington at present.

1.22 Replacement Demand--Replacement demand refers to the number of job openings that will occur as a result of individuals leaving their occupation because of retirement, death, personal reasons, an occupational transfer, or migration to another labor market. These positions are not new positions, but nevertheless must be filled by qualified workers. The following sources can be utilized in the determination of certain components of replacement occupational demand.

- Table Of Working Life--Vital Statistics--Labor force separations and death rates, calculated from working life tables and occupational age-sex distributions, are used in the OES program to estimate projected job openings because of labor force attrition. These rates have the following limitations.

    - Attrition rates are based only on age-sex distributions and ignore many key variables such as education level of workers, pension benefits, occupational hazards and diseases, working conditions, etc.

  - Rates based on census occupational categories cannot be easily translated to different occupational classification structures.

  - Age-sex distributions are generally not available for sub-State areas.

  - It is difficult to construct an occupation specific table of working life.

- Census--This source has provided 5-year occupational mobility rates for all census occupations. This source for occupational mobility data has the following limitations.

  - Occupational mobility data will not be collected in the 1980 census.

  - Classification, reporting, and sampling errors may be high.

  - The data are not timely.

- Employment Service Potential (ESP)--The ESP program makes available industry data on total employment, total hires, openings, referrals, placement, turnover rates, market penetration, referrals per opening, referrals per placement and penetration rate by ES local office area. As a data source for replacement data, the ESP has the following limitations:

  - No occupational detail is available in this program.

  - Turnover rates are not accurate for larger firms.

  - Program is not available in all States.

1.3 EMPLOYMENT BY INDUSTRY

Data on total employment by industry is used in the OES program to prepare a base-year Industry/Occupation Matrix. These industry employment figures are used as control totals in determining the occupational employment distribution for each industry. The Standard Industrial Classification (SIC) Manual, revised in 1972, is the classification system utilized in categorizing industry employment data. Industrial employment figures are published by the State Employment Security Agency in their monthly newsletters and the Annual Planning Information (API) that are part of the Labor Market Information (LMI) program. The following data sources provide data on employment by industry.

- Unemployment Insurance Data (ES-202 Reports)--The ES-202 is a quarterly report of employment and wage data obtained from private employers and government entities reporting unemployment insurance payroll taxes. This is the most complete and detailed record available of employment by industrial activity and wages paid to workers. Limitations of ES-202 data include:
    - Data are at least six months old when available.
    - No occupational detail is available.
    - Self employed, agriculture employment, and domestic workers are not required to report.
- Current Employment Statistics (CES) Program (BLS 790)--BLS cooperates in collecting data each month on employment, hours, and earnings from a sample of establishments in all nonagricultural activities including government. From these data a large number of series on employment, hours, and earnings in considerable industry detail are prepared and published monthly for the United States as a whole, for each of the 50 States and District of Columbia, and for most of the metropolitan areas. Limitations of CES data include:
    - No occupational detail is provided, only industry employment figures.
    - CES data are not directly comparable with ES-202 because of differences in coverage; however, over time the trends are similar.
    - There are some gaps in the local area coverage of the data.

Exhibit 3-1, on the following page, presents a data source matrix for the occupational demand data category.

EXHIBIT 3-1

DATA SOURCE MATRIX – OCCUPATIONAL DEMAND

DATA CATEGORIES / DATA SOURCES		OCCUPATIONAL DEMAND				
		CURRENT OCCUPA. DEMAND		PROJECTED OCCUPA. DEMAND		
		CURRENT OCCUPATIONAL EMPLOYMENT	JOB VACANCIES	EXPANSION/ REDUCTION DEMAND	REPLACEMENT DEMAND	EMPLOYMENT BY INDUSTRY
CENSUS	A 2-3	A-2			●	
CES	A 4-5					●
ESARS	A 12-13		●			
ESP	A 14-15				●	
JOB BANK	A 18-19		●			
JOB FLO	A 18-19		●			
OES	A 28-31	●		●		
TABLE OF WORKING LIFE-VITAL STATISTICS	A 38				●	
UI DATA (ES-202)	A 39-40					●

NOTES:

This matrix is intended to facilitate cross referencing to the appendices. Page numbers in the table correspond to the page numbers on the data source descriptions found in the appendices.

Data sources identified for each data category are not necessarily definitive or comprehensive.

2. OCCUPATIONAL SUPPLY

Occupational supply may be defined as the number of workers, in a specific labor market, that are available and qualified to fill jobs in an occupation. Current supply is the number of workers already employed in the occupation plus the number of unemployed persons qualified for and seeking work in the occupation. Projected supply may be defined as the number of workers expected to be available and qualified to work in an occupation at some future date, measured as the current supply plus the new entrants, minus labor force separations.[4] Data on new entrants to the labor supply for a specific occupation in a given geographical area are essential in an OIS. The following groups contribute to the supply of qualified persons actively seeking employment in a specific occupation (see Exhibit 3-2 on the following page for a graphic overview of occupational supply).

- Completers and leavers from training/educational institutions
- Currently unemployed
- Labor market net migration
- Occupational transfers
- New entrants and re-entrants to the labor force

2.1 ENROLLMENTS IN AND COMPLETERS AND LEAVERS FROM TRAINING/EDUCATIONAL INSTITUTIONS

Colleges, universities, public and private vocational/technical schools, high schools and other training/educational institutions contribute to the supply of qualified individuals seeking employment in a specific occupation. Data from these institutions are fragmented, dissimilar, and generally not easily related to specific occupations. For an OIS, it is necessary to obtain enrollment, completion, and follow-up data on students by instructional program or occupation. Enrollment data indicate the number of persons who may become part of the supply at a future date.

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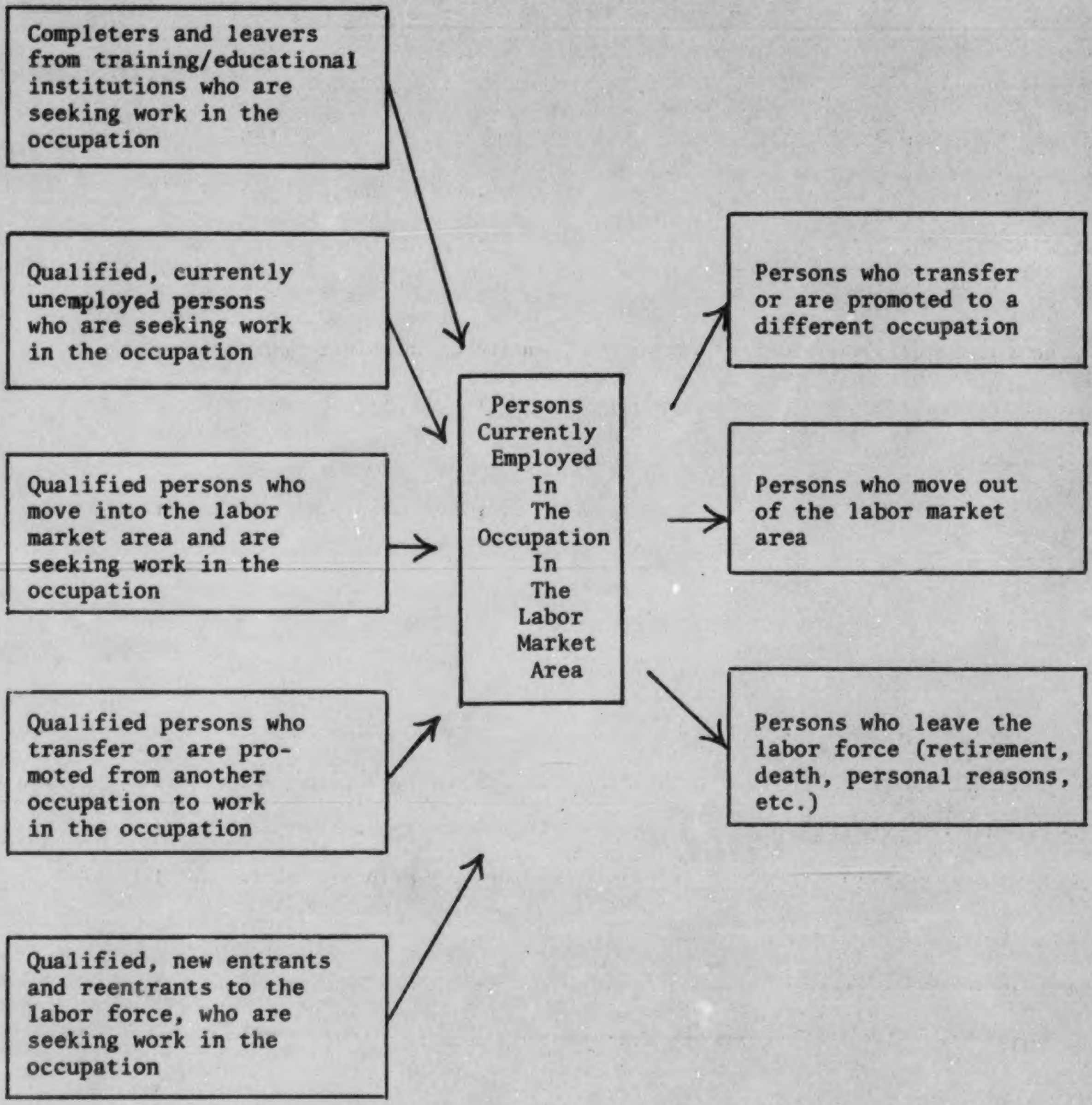
[4] For an in depth discussion of occupational supply read "Occupational Supply: Concepts and Sources of Data for Manpower Analysis," Bulletin 1816, 1974, U.S. Department of Labor, Bureau of Labor Statistics

EXHIBIT 3-2
OVERVIEW OF LABOR SUPPLY FOR A SPECIFIC OCCUPATION


Completers and leavers from training/educational institutions who are seeking work in the occupation
Qualified, currently unemployed persons who are seeking work in the occupation
Qualified persons who move into the labor market area and are seeking work in the occupation
Qualified persons who transfer or are promoted from another occupation to work in the occupation
Qualified, new entrants and reentrants to the labor force, who are seeking work in the occupation
Persons Currently Employed In The Occupation In The Labor Market Area
Persons who transfer or are promoted to a different occupation
Persons who move out of the labor market area
Persons who leave the labor force (retirement, death, personal reasons, etc.)

Completion data enable analysts to estimate the percentage of current or future trainees who will have acquired the skills required to be qualified for an occupation. Follow-up data allow for an analysis of the percentage of persons leaving with adequate skills, who seek and/or obtain work in an occupation related to their training. With these data, occupational supply from training/educational institutions can be estimated as in the following example:

Enrollment x % acquire skills x % actually seek/obtain work in occupation = supply
(completion data) (follow-up data)

100 x 90% = 90 x 80% = 72

The following are sources for data on enrollments in and completers and leavers from training/educational institutions:

- Vocational Education Data System (VEDS)--VEDS will provide enrollment, completion, program leavers and follow-up data for public secondary, postsecondary and adult vocational programs. Data are to be reported by selected six-digit USOE program categories with certain follow-up data reported by SOC code. VEDS as a data source has the following limitations:
  - Sufficient funding may not be available to obtain the data in the desired level of detail.
  - Data collection may overlap with HEGIS especially at the junior and community college level (for sub-baccalaureate degrees).
  - Apprenticeships cannot be identified separately from long-term adults.
  - VEDS only covers programs included in the Vocational Education State Plan.
  - Follow-up data may be based on a limited sample size.
  - Program categories are limited in detail.
  - Follow-up data will be classified using only two-digit SOC codes.
  - Short-term adults (less than 500 hours) are not identified by detailed program.
  - No follow-up data will be collected for short-term adults or leavers completing less than 50 percent of a program.

- Higher Education General Information Survey (HEGIS)--HEGIS covers accredited public and private colleges and universities that grant Associate Degrees or higher. Also, a limited number of proprietary schools are included. Annual enrollment data are available by level of study, but not by field of study. Data on degrees conferred, by level and field of study, are collected annually. HEGIS data have the following limitations:

  - The HEGIS taxonomy is unique and has limited detail, however plans call for modifications to increase compatibility with the proposed VEDS taxonomy.

  - Limited follow-up studies are conducted.

  - There is a lack of awareness of unpublished data that is only available on computer tapes or microfiche.

  - Although completion data are available by field of study, enrollment data are not (in previous years, enrollment data were available).

  - The data does not allow for any estimates of the number of individuals leaving prior to program completion.

  - Non-accredited colleges and universities are excluded from HEGIS.

- Noncollegiate Postsecondary School Survey--This is a biennial mail survey conducted by NCES of all known public and private (proprietary and nonprofit) schools that offer occupational programs at less than the baccalaureate level. Schools covered by HEGIS are not covered. As a source of supply data the survey has the following limitations:

  - Data are not collected annually.

  - Completer/leaver data for each school are not available for 1978 and prior years (questions have been added to 1980 survey).

  - Data on program costs and duration are available only on a national basis (participating States can sample to gather these data).

- CETA Prime Sponsors Reporting Requirements--New CETA legislation will require prime sponsors to describe training activities by target occupation. The availability of these data will have to be individually arranged between each prime sponsor and the SOICC. CETA prime sponsor data have the following limitations:

  - CETA funded students may already be counted in the Vocational Education Data System (VEDS).

  - Reporting systems are not comparable among prime sponsors.

- State National Apprenticeships System (SNAPS)--Through SNAPS the ureau of Apprenticeship and Training (BAT) maintains records of new registrations, completions, and cancellations of apprenticeships for each apprenticeable trade, by State. Local data may sometimes be developed by inspecting individual program records at the State Apprenticeship Council or BAT. SNAPS data have the following limitations:

  - SNAPS data are not comprehensive because unregistered apprenticeship training occurs frequently in industry.

  - DOT coding procedures vary among States.

- Vocational Rehabilitation Management Information System (MIS)--Many States operate a Vocational Rehabilitation MIS to satisfy the statistical reporting requirements of the Rehabilitation Services Administration (RSA). RSA has established statistical reporting standards in the Rehabilitation Services Manual in 1974. The basis of the standardized system of statistical reporting is Form SRS-RSA-300, the Case Service Report. This form requires occupational coding using a four-digit DOT. Limitations of this data source include:

  - Occupational coding procedures are inconsistent since vocational rehabilitation counselors may be using an abridged list of DOT titles and codes rather than the DOT itself.

  - Four-digit DOTs may not provide sufficient detail for certain applications of the data.

  - Five employment situation codes are used in the RSA reporting standards that are not compatible with the DOT or other occupational classification structures.

- State Education Management Information System (MIS)--Many States have a State Education MIS that is utilized to collect data from education programs at all levels. Generally, these systems will utilize the U.S. Office of Education Program Codes (Handbook VI). A by-product of these systems is the capability to provide data on enrollments in and completions from vocational programs. Limitations of these State MISs include:

  - Definitions of enrollments, completions, leavers, and training related placements are often inconsistent among Local Education Agencies (LEAs) or States.

  - Data collected are of varying degrees of accuracy.

2.2 CURRENTLY UNEMPLOYED

Data on unemployed individuals seeking jobs provide a measure of supply for specific occupations. For example, if a large number of individuals with specific occupational skills are unemployed, it is likely that a surplus of qualified workers exists. Sources of data on the currently unemployed include:

- Unemployment Insurance (UI)--The ES-203 reports provide demographic data on persons in active unemployment insurance status. Data are available by occupational and industrial attachment. The ES-210 report summarizes local office claims on a monthly basis. Unemployment insurance data have the following limitations:
    - The data include only persons covered by an insured unemployment program.
    - ES-203 data in most States are available only on tape.
    - ES-203 data are limited by sample size, field office response, and accuracy of occupational coding.
    - ES-210 shows only gross number of claimants.
- Employment Service Automated Reporting System (ESARS)--The system provides data on employment security transactions. Information is available on the occupational skills of job applicants. As a data source, ESARS has the following limitations:
    - Data are limited to applicants at the ES field offices.
    - Errors result from the process of assigning DOT codes to classify applicants' occupational skills.
    - Applicant is only categorized in one occupational category.

2.3 LABOR MARKET NET MIGRATION

Occupational supply for a labor market is affected by the migration of workers from one labor market to another. Net migration data should be developed on a National, State and local labor market area basis. Planners need these data to estimate the extent to which current and future occupational demand will be satisfied by workers who move into an area. Sources of data on net migration include:

- Census--Data from the 1970 Census was used to develop migration estimates between States. Data on occupational mobility can be cross classified with data on geographic mobility. This source has the following limitations:
    - Occupational titles are supplied by the interviewee and thus are subject to error and inaccuracies.
    - Census information is not timely.

  - Census occupational classifications provide inadequate detail for certain applications.
  - Occupational titles must be translated to census occupational classifications and may be improperly coded.

2.4 OCCUPATIONAL TRANSFERS

Job vacancies may be filled by persons with a different occupational specialty. Persons move up career ladders within a company or industry into new occupational categories and others make radical career shifts (e.g., teachers become computer programmers). Planners need to estimate how much of current and future occupational demand will be met by persons changing occupations. Information on occupational transfers can be obtained from:

- Census--In the 1970 Census, data were collected on the occupation persons had then and five years previously. Limited national data were published in Bureau of Census Reports. Additional research using census data has been published by the Bureau of Labor Statistics. Occupational transfer data derived from this source have the following limitations:
  - Data have limited reliability at geographic levels below national.
  - Data were based on interviewee's ability to recall his or her occupation five years previously.
  - Occupational mobility data will not be collected as part of the 1980 Census.
  - Data have limited use in calculating net mobility rates for occupations.
- Current Population Survey--Since the early 1960s, four studies of occupational mobility have been conducted using data from the Current Population Survey. The data show retention of workers in specific occupations from one year to the next. This source has the following limitations:
  - Only national data are available due to the sample size.
  - National data are unreliable for occupations without significant employment.

2.5 NEW ENTRANTS OR REENTRANTS TO THE LABOR FORCE

Persons move into and out of the labor force. Common examples include: (1) a woman returning to the labor force after child rearing, (2) a person completing military service, (3) a displaced homemaker, and (4) a person who has been in a prison or hospital. An indication of the magnitude of new entrants or reentrants can be obtained from the following source:

- Employment Service Potential (ESP)--As part of ESP, social security numbers of employees for a given employer in a given quarter are compared to the social security numbers reported by the same employer in previous or future quarters. This comparison results in an estimate of a firm's new hires and terminations in a calendar quarter. ESP data have the following limitations.
  - Data are 5 to 6 months old when available.
  - Data are available only for a limited number of States.
  - Occupational specific data are not available.

Exhibit 3-3, on the following page, presents a data source matrix for the occupational supply data category.

EXHIBIT 3-3

DATA SOURCE MATRIX – OCCUPATIONAL SUPPLY

DATA CATEGORIES DATA SOURCES		OCCUPATIONAL SUPPLY				
		ENROLLMENT IN & COMPLETERS & LEAVERS FROM TRAINING/EDUCATIONAL INSTITUTIONS	CURRENTLY UNEMPLOYED	LABOR MARKET NET MIGRATION	OCCUPATIONAL TRANSFERS	NEW ENTRANTS, RE-ENTRANTS TO THE LABOR FORCE
CENSUS	A 2-3			●	●	
CETA REPORTING	A 6	●				
CPS	A 7-8				●	
ESARS	A 12-13		●			
ESP	A 14-15					●
HEGIS	A 16	●				
NONCOLLEGIATE, POST SEC. SCH. SURVEY	A 26	●				
SWAPS	A 35-36	●				
STATE EDUCATION MIS	A 37	●				
UI DATA	A 39-40		●			
VEDS	A 41-44	●				
VOC. REHAB. MIS	A 45-46	●				

NOTES:

This matrix is intended to facilitate cross referencing to the appendices. Page numbers in the table correspond to the page numbers on the data source descriptions found in the appendices.

Data sources identified for each data category are not necessarily definitive or comprehensive.

3. OCCUPATIONAL CHARACTERISTICS

Information related to the characteristics of occupations is needed for planners to determine course and program content. Also these data are essential for effective counseling, guidance, and job search purposes. Vocational rehabilitation counselors can utilize this information to assess the appropriateness of specific occupations for their clients. Occupational characteristics data should reflect the local employment environment. This section describes the occupational characteristics data that should be available in an OIS.

3.1 EARNINGS AND BENEFITS

Information is needed on the compensation paid to workers, including commissions, bonuses, and fringe benefits. Wages are usually paid by the hour for work rendered. Salaried positions usually assume a minimum number of hours for which payment is made. Earnings data, one of the most frequently requested items of information, are essential for an OIS.

Earnings data are needed on a labor market area, State, and national basis. The data should be timely, as inflation and union contracts cause earnings and benefits to change often. Earnings data can be obtained from the following sources:

- BLS Area Wage Surveys (AWSs)--The Area Wage Surveys are conducted annually and provide wage data for occupations common to a wide variety of industries in the areas surveyed. The AWSs are reputed to be the best planned and most reliable survey of wages. The AWSs have the following limitations:
    - They only cover limited geographic areas of the nation.
    - They are limited in the number and type of occupations covered.
- Industry Wage Surveys--Industry wage surveys (conducted by BLS) provide data for occupations selected to represent the full range of activities performed by workers. Fifty manufacturing and twenty nonmanufacturing industries, accounting for about 22.5 million employees, are surveyed on a regularly recurring basis. A majority are studied on a 5-year cycle, but a number of comparatively low-wage industries are on a 3-year cycle. These surveys have the following limitations:

- Number of industries covered by these surveys is limited.

- Data for certain industries will not be reliable for State and area wage estimates.

- The occupational detail for which wage data are available may be limited by survey constraints.

. Unions, Professional Associations, Etc.--Unions and professional associations occasionally conduct surveys regarding the earnings of their members. These surveys have the following limitations:

- Each survey must be evaluated for statistical validity.

- Occupational titles are limited to those represented by the union or professional association.

. Employment Service Automated Reporting System (ESARS)--Data are available on wages from job applications and job orders filed with local Employment Security offices. ESARS wage data have the following limitation:

- Wages are normally in the lower quarter of the wages paid in the occupation.

. Census--Census based annual earnings data are available for individuals and households. The census earnings data have the following limitations:

- Self-reported earnings estimates may be misstated.

- Census data are outdated and should be used only to compare levels of earnings across occupations.

- Census classifications preclude comparisons at a detailed level.

. Other Wage Surveys--Cities, State governments, and Employer Councils occasionally conduct local wage surveys for specific occupations. These surveys have the following limitations:

- Occupational classifications are usually not standardized.

- Surveys sometimes are poorly designed and executed.

. Occupational Outlook Handbook (OOH)--The OOH provides a secondary source of information on wages. Data represent a national wage scale and have the following limitation:

- The OOH wage information needs to be supplemented with State and LMA data.

3.2 JOB DUTIES

Job duties refer to the specific tasks a worker performs to fulfill job requirements. Knowledge of job duties is mandatory for curriculum development. Also, job duty information is very important to handicapped persons for assessing whether they are capable of performing required physical and mental activities. There may be some differences in job duties for particular occupations in different geographic areas. Job duty information can be obtained from:

- Occupational Outlook Handbook (OOH)--The OOH provides an excellent description of the duties involved in specific occupations. The OOH has the following limitation:
    - The job duties described are general in nature and may not be locally applicable.
- Dictionary Of Occupational Titles (DOT)--The DOT provides an overview of key job duties in their occupational descriptions. The DOT as a source of job duty information has the following limitation:
    - It is not updated frequently enough to preclude descriptions of certain occupations from becoming out-of-date.
- Occupational Guides And Brochures--State Employment Security Agencies prepare occupational guides and brochures that include details of the job duties associated with occupations. In these publications, local differences in job duties are noted.
- Dictionary Of OES Occupations--This dictionary presents job definitions for those occupations included in the OES survey. Included in many of the occupational definitions is a description of the job duties associated with that occupation.

3.3 WORK SETTINGS AND CONDITIONS

Information is needed on the physical, social and psychological environment in which occupational tasks are performed. These data are used in career counseling, career decision-making, and curriculum development. Work setting and conditions information can be obtained from the following sources:

- Occupational Outlook Handbook (OOH)--The OOH provides a general description of the typical work settings and conditions associated with each occupation.

- Dictionary Of Occupational Titles (DOT)--The occupational descriptions provide insight as to typical work settings and conditions.

- Occupational Guides And Brochures--These SESA publications contain descriptions of the working conditions in job settings associated with specific occupations.

- Occupational Safety And Health Administration (OSHA)--This agency and BLS publish several annual reports containing information on accidents, injuries, and fatalities in various occupations.

3.4 ABILITY AND APTITUDE

Counselors, planners, and career decision makers require information on the physical, mental and psychological attributes essential for performing occupational tasks. This information can be obtained from:

- Occupational Outlook Handbook (OOH)--The OOH provides generalized statements on necessary aptitudes and abilities.

- Dictionary Of Occupational Titles (DOT)--The supplements to the DOT, Third Edition, provide substantial information in the presentations of the Worker Trait Groups.

- Occupational Guides And Brochures--These SESA publications describe the abilities and aptitudes required for specific occupations.

3.5 LICENSING, REGISTRATION, AND CERTIFICATION REQUIREMENTS

For certain occupations, job seekers must obtain from a professional society, educational institution, political unit, or labor organization, a formal statement that attests to the individual having met specific standards and criteria. Information on those requirements is necessary for career guidance and decision making. Also, this information is very important to curriculum developers, because it can be translated into specific teaching/learning objectives. Using the data from certifying agencies, it is possible to get a better picture of supply for specific occupations. Data are necessary on a local, State, and national basis. The following sources provide information on licensing, registration, and certification requirements:

- Occupational Outlook Handbook (OOH)--The OOH provides information on a national basis. The OOH has the following limitations as a source for this data:

  - States and/or LMAs can have different requirements for the same occupation.

  - OOH information needs to be supplemented with local information.

- Dictionary Of Occupational Titles (DOT)--The DOT provides information on licensing requirements for selected occupations. As a source for this data, the DOT has the following limitation:

  - Information is only available for a limited number of occupations.

- Occupational Guides And Brochures--These SESA publications will generally include State specific licensing, registration, and certification requirements. In some states, the SESA will prepare a special publication that indicates which occupations require licenses and how and where these licenses may be obtained.

- ETA And SESA Publications--In several States, the State Employment Security Agency publishes a document describing the licensing, registration and certification requirements for occupations within the State. ETA is currently in the process of preparing a monograph that will provide national information in this area.

3.6 EDUCATION/TRAINING SKILL ACQUISITION PATTERNS

Information is needed on the typical manner in which one acquires the education/training and skills necessary to perform occupational tasks. This information is available from:

- Occupational Outlook Handbook (OOH)--General information is available on many occupations.

- Occupational Guides And Brochures--These SESA publications provide information describing how individuals may obtain the necessary skills to perform occupational tasks.

3.7 EDUCATION/TRAINING REQUIREMENTS

Planners, counselors, and career decision makers must have information on the formal education and training necessary to qualify for employment in a specific occupation. Information can be obtained from:

- Occupational Outlook Handbook (OOH)--Information is provided on the typical education and training requirements for various occupations.

- Dictionary Of Occupational Titles (DOT)--The Worker Trait Groups information can be used to infer the education and training that is typical for selected occupations. In particular, the Specific Vocational Preparation (SVP) and General Educational Development (GED) indicators are useful in this regard.

- Occupational Guides And Brochures--These SESA publications provide State and local information with regard to the education and training requirements for selected occupations. In those instances where State and local requirements differ from national patterns, these differences are highlighted.

3.8 DEMOGRAPHICS OF WORKERS BY OCCUPATION

Information is needed on the distinguishing traits, features, or qualities of persons currently employed in specific occupations. Available information should include sex, age, race, socio-economic status, and educational attainment. This information is useful for career guidance and is necessary for analyzing occupational areas of discrimination or under-representation including instances of sex bias and stereotyping. The following are sources for these data:

- Census--The census provides demographic data on the labor force. The census does have the following limitations:
    - Census information is not timely and is outdated quickly.
    - Occupational titles are supplied by the interviewee and thus are subject to error and inaccuracies.
    - Census occupational classifications provide inadequate detail for certain applications.
- Current Population Survey--The CPS can provide a demographic profile of certain occupational fields. For national purposes, these profile estimates would be adequate. However, CPS data do have the following limitation:
    - The sample size of the CPS may be too small to permit detailed analysis of certain occupations or to provide State and area data
- Professional Associations--Many associations publish reports describing the demographic characteristics of their membership. To the extent that their membership represents specific occupational fields, this information is useful in preparing a demographic profile of an occupation.

3.9 CAREER LADDERS

Career ladder refers to a potential progression of job responsibilities, skill attainments, and advancement possibilities within an occupational field. This information is essential for career guidance and curriculum development. Career ladder information can be obtained from:

- Occupational Outlook Handbook (OOH)--General data are available for many occupations.

- State Apprenticeship Agencies, Professional Associations, Unions, Etc.--These sources of data cover occupational areas appropriate to their memberships or apprentice programs. A major limitation of these data sources is:

    - The publications may not reflect the actual career ladder that exists within an occupation.

3.10 MAJOR EMPLOYERS

Placement counselors and job seekers need to know employers of persons with specific occupational skills. This information can be obtained from:

- Employer Directories--These types of publications are generally found in most States. These directories may provide information on local, State, or national employers.

- Unemployment Insurance Data (ES-202 Report)--The ES-202 Report can provide a quarterly listing of employers covered by the Federal Unemployment Tax Act (FUTA) and/or relevant State Employment Security laws. The listing will provide employer names by industrial classification. Using OES survey data in conjunction with the ES-202 report, it is possible to develop rough estimates of the occupational structure within specific firms. A major limitation of this data source is:

    - Confidentiality problems might prevent the publication of certain employer specific information collected either for the ES-202 report or through the OES survey.

3.11 HIRING CHANNELS

To facilitate job search activities it is necessary to have information on the procedures that employers use to identify, evaluate, and hire new employees. Information on hiring channels can be obtained from:

- Employment Service Automated Reporting System (ESARS)--ESARS data provide an indicator of the process employers use in selecting new employees.

- Occupational Guides And Brochures--These SESA publications often contain information on the best means of job entry.

3.12 OCCUPATIONAL TITLES AND DESCRIPTIONS

Occupations can be defined and specified by describing the tasks performed and identifying the tools, machines, aids, and materials used on the job. Occupational titles and descriptions provide a basis for categorizing employment data and thus allowing systematic analysis of that data. Occupational titles and descriptions also provide a structure for presenting career guidance and job search information and aid in illustrating the inter-relationships among occupations. Identification of related occupations allows for clustering of occupations for analytical purposes. Information on related occupations is also useful for career guidance and curriculum development. The following are the sources of occupational titles and descriptions:

- Dictionary Of Occupational Titles (DOT)--The DOT is the most comprehensive reference; however, it has the following limitation:
    - The number of job titles may hinder their use in career development and planning activities.
- Census--The census provides titles for approximately 400 occupational categories. The following limitations exist:
    - Definitions are not provided for the occupational titles.
    - Occupational groupings include a wide range of skill levels.
    - There may be too few occupational classifications for certain applications.
    - The Census occupational titles cannot be easily related to other occupational classification structures.
- Standard Occupational Classification (SOC)--The SOC is a compromise between the census, DOT, and OES classifications, but has the following limitations:
    - The current SOC does not include a reference to all existing occupational groupings.
    - Further work is required to refine the SOC.
    - Occupational groupings include a wide range of skill levels.
    - There may be too few occupational classifications for certain applications.

- Occupational Employment Statistics (OES)--This occupational classification structure contains approximately 1,700 occupational categories. Definitions and descriptions of the occupational categories are provided in the Dictionary of OES Occupations. The OES classification structure has the following limitations:
    - OES does not contain the occupational detail of the DOT.
    - No agricultural occupations are included in the OES.

Exhibit 3-4, on the following page, presents a data source matrix for the occupational characteristics data category.

EXHIBIT 3-4

DATA SOURCE MATRIX – OCCUPATIONAL CHARACTERISTICS

DATA CATEGORIES / DATA SOURCES		OCCUPATIONAL CHARACTERISTICS											
		EARNINGS AND BENEFITS	JOB DUTIES	WORK SETTINGS AND CONDITIONS	ABILITY AND APTITUDE	LICENSING, REGISTRATION, AND CERTIFICATION REQUIREMENTS	EDUCATION/TRAINING SKILL ACQUISITION PATTERNS	EDUCATION/ TRAINING REQUIREMENTS	DEMOGRAPHICS OF WORKERS BY OCCUPATION	CAREER LADDERS	MAJOR EMPLOYERS	HIRING CHANNELS	OCCUPATIONAL TITLES AND DESCRIPTIONS
BLS AREA WAGE SURVEYS	A 1	●											
CENSUS	A 2-3	●							●				●
CPS	A 7-8								●				
DOT	A 9-11		●	●	●	●		●					●
EMPLOYER DIRECTORIES											●		
ESARS	A 12-13	●										●	
ETA AND SESA PUBLICATIONS						●							
INDUSTRY WAGE SURVEYS	A 17	●											
OCCUPATIONAL GUIDES & BROCHURES	A 32		●	●	●	●	●	●				●	
OES	A 28-31		●										●
OOH	A 33	●	●	●	●	●	●	●		●			
OSHA				●									
OTHER WAGE SURVEYS	A 47	●											
SOC	B 11-14												●
STATE APPRENTICESHIP AGENCIES, UNIONS, PROF. ASSOC.	A 34	●							●	●			
UI DATA	A 39-40										●		

NOTES:

This matrix is intended to facilitate cross referencing to the appendices. Page numbers in the table correspond to the page numbers on the data source descriptions found in the appendices.

Data sources identified for each data category are not necessarily definitive or comprehensive.

4. COMPLEMENTARY INFORMATION

The complementary information component provides a mechanism for incorporating various data related to occupational information needs into an OIS. Complementary information can be tailored for planning, career guidance or job search purposes. Although a wide variety of data can be incorporated, the following information, at a minimum, should be made available through an OIS.

4.1 INVENTORY AND DESCRIPTIONS OF EDUCATION AND TRAINING PROGRAMS

Counselors, potential students, and administrators need a listing of existing education and training programs and the schools that offer the programs. Information is needed on the costs, the duration of the course, course content, and course objectives. Information on existing education and training programs can be obtained from:

- Vocational Education Data System (VEDS)--The VEDS system will provide substantial data on programs at public high schools and community colleges. As a source of data VEDS has the following limitations:
    - Does not cover proprietary schools.
    - Initially, information pertaining to individual schools and programs may not be available.
- State Education Management Information System (MIS)--States currently collect substantial data from the public high schools and community colleges. Generally, these systems have the following limitations:
    - Do not cover proprietary schools.
    - Accuracy of data is sometimes questionable.
- Noncollegiate Postsecondary School Survey--NCES conducts a biennial mail survey of all known public and private schools that offer occupational programs at less than the bacculaurate level. Enrollment data, by sex and full-time/part-time status, are collected for each program offered and are coded using the USOE classification system. The schools participating in the survey are included in the Directory of Postsecondary Schools With Occupational Programs, published biennially. As a source of data, the survey has the following limitations:

  - Data are not collected annually
  - Data on costs and duration of programs are available only on a national basis. (Participating States can sample their schools to gather these data.)

- School Catalogues--Many proprietary and public schools publish catalogues or pamphlets to describe their course offerings. Data are normally provided on course duration, teaching approach, costs, and course content. As a data source, catalogues have the following limitations:
  - Not published by all schools
  - Usually do not provide data on enrollments, completions, or placements
  - Standard definitions are not typically used

- Higher Education General Information Survey (HEGIS)--HEGIS reports provide information on accredited public and private colleges and universities that grant associate degrees or higher. In addition, a limited number of proprietary schools are included. Data are available on computer tape at the institution level.

- State And National Apprenticeship System (SNAPS)--SNAPS produces output reports that display data on apprentice actions and characteristics by occupations, industries and programs on a national, regional and State basis. Also, summaries are provided on the number of registered programs, by type of program and by Bureau of Apprenticeship Training (BAT) or State Apprenticeship Agencies (SAC) assignment.

4.2 FINANCIAL ASSISTANCE

Information on sources of financial assistance to students/trainees is very useful. To take advantage of available assistance, individuals first must be informed of the types of assistance that exist, the criteria used to grant assistance, and the process for applying. If all students are aware of the potential sources of financial assistance then there can be equitable competition for and distribution of financial aid. Information on financial assistance can be obtained from:

- School Catalogues--Schools may award scholarships, grants or loans to needy students or students with special interests or abilities.

- OE Grants And Assistance Programs--Information is provided by DHEW describing grants and assistance programs available from the Office of Education.

4.3 LABOR FORCE DEMOGRAPHICS AND TRENDS

Demographic data such as age, sex, race, educational attainment, and occupation, are needed on the employed, the unemployed, and persons not in the labor force. This information is needed to identify special needs of or potential discrimination against groups such as the elderly, the young, and minority groups. Demographic data are important for planners to determine trends or changes in the supply of workers. Information on labor market trends provides insight into the economic structure of an area or community, its industrial base, and the economic changes that have taken place or can be expected. Labor market demographic and trend data can be obtained from:

- Labor Market Information (LMI) Program--The Annual Planning Information (API) report published by the State Employment Security Agency provides information on a statewide basis and for large SMSAs. The API should provide historical, current and outlook information on employment, unemployment and occupational trends, as well as numbers and characteristics of the population and labor force, unemployed, economically disadvantaged, underutilized persons, and other special groups.
- Census--The census is the most comprehensive source of demographic data on the population of the United States. However, the census data has the following limitation:
    - Census information is not timely.
- Current Population Survey (CPS)--Data is collected monthly through a survey of 55,000 households throughout the country. The CPS has the following limitations:
    - Because of the small sample size, the data become more unreliable as they are disaggregated.
    - National data are unreliable for occupations without significant employment.
- Unemployment Insurance Data (ES-203 Report)--For the insured unemployed, data are collected on demographics, occupational and industrial attachment, and duration of unemployment. This source has the following limitations:
    - Unemployed persons with insufficient recent work experience are not covered.
    - Data are based on a sample of unemployment insurance claimants.

- Eligibility laws vary among states, thus limiting the comparability of data

- Local Area Unemployment Statistics (LAUS)--Unemployment estimates for States and local areas are developed by State employment security agencies to measure local labor market imbalance and hence are a key indicator of local economic conditions. These estimates are used by State and local governments for planning and budgetary purposes and as an indication of the need for local employment and training services and programs. LAUS data have the following limitations:
  - There is no occupational detail in the LAUS program.
  - Data are used for funds eligibility and allocation purposes and have limited direct applicability for use in an OIS.

4.4 ADDITIONAL SOURCES OF OCCUPATIONAL INFORMATION

Some states may have a directory or bibliography that can be used to direct individuals to additional sources of information on specific occupations. This information ranges from a list of persons who work in an occupation and would be willing to talk about their job to a listing of publications that an interested person should read. Many State Employment Security Agencies have developed directories of labor market information publications which are available on request.

Exhibit 3-5, on the following page, presents a data source matrix for the complementary information data category.

EXHIBIT 3-5

DATA SOURCE MATRIX – COMPLEMENTARY INFORMATION

DATA CATEGORIES DATA SOURCES		COMPLEMENTARY INFORMATION			
		INVENTORY AND DESCRIPTION OF EDUCATION AND TRAINING PROGRAMS	FINANCIAL ASSISTANCE	LABOR MARKET DEMOGRAPHICS	ADDITIONAL SOURCES OF OCCUPATIONAL INFORMATION
CENSUS	A 2-3			●	
CPS	A 7-8			●	
HEGIS	A 16	●			
LAUS	A 20-21			●	
LMI PROGRAM	A 22-25			●	
NONCOLLEGIATE POST SEC. SCH. SURVEY	A 26	●			
OE GRANTS AND ASSISTANCE PROGRAMS			●		
SCHOOL CATALOGUES		●	●		
SNAPS	A 35-36	●			
STATE EDUCATION MIS	A 37	●			
UI DATA	A 39-40			●	
VEDS	A 41-44	●			

NOTES:

This matrix is intended to facilitate cross referencing to the appendices. Page numbers in the table correspond to the page numbers on the data source descriptions found in the appendices.

Data sources identified for each data category are not necessarily definitive or comprehensive.

5. SUPPLY/DEMAND INTERFACE

An interface and analysis of occupational supply and demand information is an essential component of an occupational information system. Treated separately, supply and demand data are useful but insufficient information as inputs for planning and counseling purposes. The analysis of occupational supply and demand is the most critical part of the occupational information needed by training program planners and counselors.

From the classical economist's viewpoint, the number of individuals available and willing to work in an occupation at a given wage (supply) affects an employer's decision to hire workers in that occupation. Similarly, the demand for workers at a given wage affects the number of individuals willing to enter an occupation. Many factors, economic and non-economic, complicate the study of the interaction of supply and demand for workers. Neither employers nor workers always behave in strict adherence to classical economic notions, nor have complete and accurate knowledge of the job market.

In an ideal situation, complete and consistent information on current and projected job openings and current and projected labor market entrants would be available to all users. This discussion assumes a condition exists that permits an analysis of the balances and imbalances between demand for and supply of workers. Comparisons of data on projected job openings and expected labor market entrants will result in one of three outcomes: a supply/demand balance (entrants equals openings), a shortage (entrants less than openings), or a surplus (entrants greater than openings).

Analysis of the results should focus on the reasons for the balance, surplus, or shortage. For example, does a shortage exist because earnings and working conditions are unattractive? Are training programs available or planned in occupational fields for which there appears to be an increasing demand? Are completers of specific training programs obtaining jobs in occupations related to their training? A complete analysis of occupational supply and demand in a labor market must consider qualitative aspects of occupations in addition to the quantitative indicators. Such analyses can provide valuable information to planners, counselors, and career decision makers for understanding the underlying reasons for occupational supply-demand imbalances.

At the present time, all the data needed for calculating and comparing job openings and entrants are not available. Also, procedures for conducting such comparisons are not standardized. Therefore, supply/demand comparisons must be prepared using incomplete information, while at the same time striving to improve the required data and establish the necessary procedures. As a first step to develop the comparison, one must acquire an understanding of the various classification structures that are used to codify supply and demand data. (A detailed discussion of each is provided in Appendix B.)

5.1 CLASSIFICATION STRUCTURES RELATED TO OCCUPATIONAL DEMAND

Occupational demand data are usually available according to one of the following coding structures.

- Census Code--This coding structure was used to classify occupational data collected in the decennial census and the CPS. The 1970 Census data uses 441 occupational categories. The census scheme allows for cross-tabulating the data to 227 industrial categories. The 441 occupational categories have associated job titles, which are listed in the 1971 Classified Index Of Industries And Occupations and the Alphabetic Index Of Occupations And Industries.
- Dictionary Of Occupational Titles (DOT) Code--The first six digits of the nine-digit DOT code represent the type and level of work performed. The last three digits are used to differentiate an occupation from all others. DOT codes exist for the approximately 20,000 occupational titles listed in the Fourth Edition of the DOT.
- Occupational Employment Statistics (OES) Code--This coding structure, contains approximately 1,700 occupational classifications. The classifications are presented in the OES Dictionary.
- Standard Occupational Classification (SOC) Code--This coding structure, recently developed by the Department of Commerce, is structured on four levels: division, major group, minor group, and unit group. Each level represents a finer level of detail, thus users are able to tabulate or analyze data at different levels of aggregation. The SOC contains approximately 660 occupational classifications which are cross referenced with DOT occupations in the Index To The Standard Occupational Classification Manual.

5.2. CLASSIFICATION STRUCTURES RELATED TO OCCUPATIONAL SUPPLY

The codes related to occupational demand can also at times apply to occupational supply (e.g., job applicants at local employment security offices are classified using the DOT). However, two additional codes are related specifically to occupational supply.

- U.S. Office Of Education (USOE) Code (Handbook VI)[5]--This code is used to describe courses and programs in elementary, secondary, postsecondary, and adult schools as well as community colleges. The code contains 22 principal subject matter areas, programs, or curricula, several of which are concerned with vocational education.
- Higher Education General Information Survey (HEGIS)[5]--HEGIS codes represent distinct program fields, which may be either academic disciplines or occupational specialties. HEGIS codes are presented in A Taxonomy Of Instructional Programs In Higher Education.

5.3 MATCHING OCCUPATIONAL SUPPLY AND DEMAND

For the purposes of the OIS, the process of analyzing occupational supply and demand differs from the traditional economic approach. In the OIS, demand data will provide information related to job opportunities in specific occupations for current and future time periods (usually one-year and five-year time horizons). The occupations, for which the job opportunities exist, will generally be categorized in accordance with one of the occupational classification structures described in Section 5.1 above. The process of analyzing occupational supply and demand data will involve "matching" the supply data pertaining to potential new labor market entrants with the occupational categories for which demand data exists. This matching process is complicated by the multiplicity of classification structures that are being used to classify data from the various sources of occupational supply. These classification structures include not only the occupational coding systems discussed in Section 5.1, but also the instructional discipline taxonomies presented in Section 5.2. Exhibit 3-6, on the following

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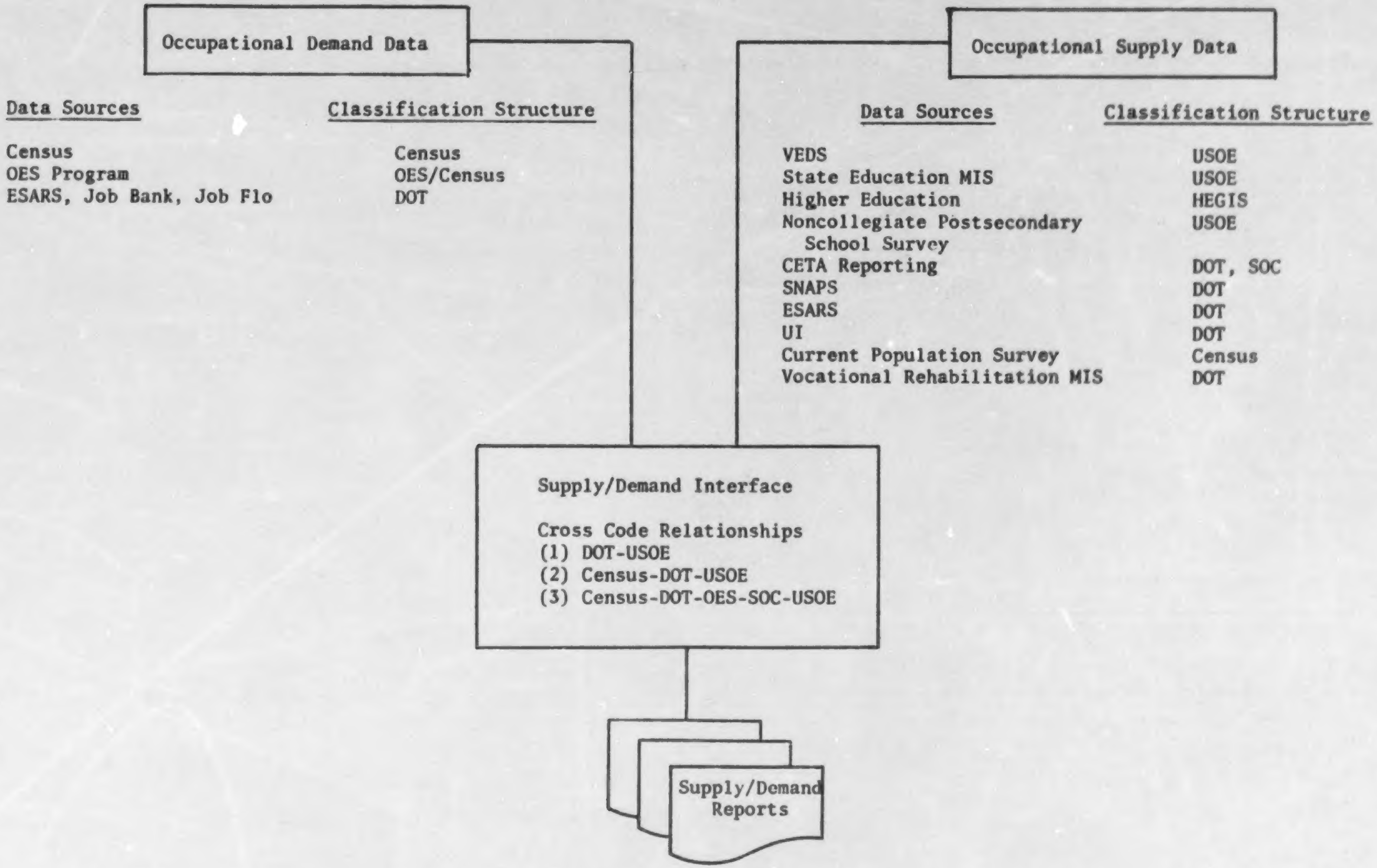
[5] At present, NOICC OE and NCES are in the process of developing new, more comprehensive vocational program descriptors to be incorporated into the USOE codes. This effort will be combined with another project and result in a new taxonomy of instructional programs that will replace the current Handbook VI and HEGIS codes.

EXHIBIT 3-6
MATCHING OCCUPATIONAL
SUPPLY AND DEMAND



Occupational Demand Data

Data Sources	Classification Structure
Census	Census
OES Program	OES/Census
ESARS, Job Bank, Job Flo	DOT

Occupational Supply Data

Data Sources	Classification Structure
VEDS	USOE
State Education MIS	USOE
Higher Education	HEGIS
Noncollegiate Postsecondary School Survey	USOE
CETA Reporting	DOT, SOC
SNAPS	DOT
ESARS	DOT
UI	DOT
Current Population Survey	Census
Vocational Rehabilitation MIS	DOT

Supply/Demand Interface

Cross Code Relationships
(1) DOT-USOE
(2) Census-DOT-USOE
(3) Census-DOT-OES-SOC-USOE

page, graphically depicts the sources of occupational demand data, occupational supply data, and the cross-code interrelationships that might be utilized in matching the occupational supply and demand data.

Currently there are two generally accepted approaches for matching occupational supply and demand. One approach is occupational clustering which involves grouping occupations by common skill requirements or work activities. Similarly, educational clusters are based on the skills taught as part of the course curriculum. Clustering allows homogeneous groups of occupations and educational courses to be matched. The second approach for matching occupational supply and demand data is to utilize direct code crosswalks. Direct code crosswalks are built upon the concept that specific interrelationships between the codes in different classification structures can be identified. Direct code crosswalks are necessary in the comparison of supply and demand data which have been codified utilizing the various classification structures described in Sections 5.1 and 5.2 above. The following direct code crosswalks, which are discussed in Appendix C, can be utilized in an OIS.[6]

- DOT-USOE (Source: Vocational Education And Occupations)
- Census-DOT-USOE (Sources: Matching Occupational Classifications To Vocational Program Codes, Tomorrow's Manpower Needs, Supplement 3 (Revised) and the California Cross-Code Index)
- Census-DOT-OES-SOC-USOE (Source: Vocational Preparation And Occupations--Occupational And Educational Code Crosswalk)

Matching occupational supply and demand is further complicated, because of the lack of standardized data on the various sources of occupational supply. For example, it is difficult to estimate the extent to which occupational or geographic mobility will affect the supply of workers for a specific occupation.

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[6] In addition to the crosswalks listed above, BLS can provide listings or tapes of the following code crosswalk:
(1) OES-DOT-USOE
(2) OES-Census
(3) OES-DOT
(4) SOC-OES

The end result of the process of matching occupational supply and demand data should be the production and publication of a series of supply/demand reports. These reports should be part of the LMI core product prepared for Vocational Education by the State Employment Security Agency (NOTE: In many instances, supply/demand reports are already included in this core product). These reports should be formattted to present information in a clear, concise manner to users. The supply/demand reports should provide the necessary current and projected occupational information that administrators and planners need for planning purposes. The SOICC Director, utilizing the resources of the SOICC and its member agencies, should coordinate efforts between data users and data producers to develop the appropriate formats for the supply/demand reports. Such information may be dependent on availability of data within the state or to the SOICC.

5.4 USE OF SUPPLY/DEMAND ANALYSIS

Supply/demand analysis has widespread applications. Knowledge of future labor market conditions enables vocational education planners and administrators to identify programs that will have high student placement rates. CETA planners can also determine the occupations most suitable for their target populations. State and local economic development specialists can use the data to respond to company representatives who are contemplating relocations in local areas. Supply/demand analysis is particularly important to counselors, career decision makers, and job seekers. Individuals should be aware of their likelihood of obtaining employment in an occupation, prior to investing substantial time and money in training, preparation, or job search activities.

6. MASTER DATA SOURCE MATRIX

Exhibit 3-7, on the following page, is a summary matrix that displays OIS data categories and data sources. This matrix incorporates the data source matrices for occupational demand, occupational supply, occupational characteristics, and complementary information.

EXHIBIT 3-7
MASTER DATA SOURCE MATRIX

DATA CATEGORIES		OCCUPATIONAL DEMAND					OCCUPATIONAL SUPPLY					OCCUPATIONAL CHARACTERISTICS												COMPLEMENTARY INFORMATION			
		CURRENT OCCUPA. DEMAND		PROJECTED OCCUPA. DEMAND																							
DATA SOURCES		CURRENT OCCUPATIONAL EMPLOYMENT	JOB VACANCIES	EXPANSION/REDUCTION DEMAND	REPLACEMENT DEMAND	EMPLOYMENT BY INDUSTRY	ENROLLMENT IN & COMPLETERS & LEAVERS FROM TRAINING/EDUCATIONAL INSTITUTIONS	CURRENTLY UNEMPLOYED	LABOR MARKET NET MIGRATION	OCCUPATIONAL TRANSFERS	NEW ENTRANTS, RE-ENTRANTS TO THE LABOR FORCE	EARNINGS AND BENEFITS	JOB DUTIES	WORK SETTINGS AND CONDITIONS	ABILITY AND APTITUDE	LICENSING, REGISTRATION, AND CERTIFICATION REQUIREMENTS	EDUCATION/TRAINING SKILL ACQUISITION PATTERNS	EDUCATION/TRAINING REQUIREMENTS	DEMOGRAPHICS OF WORKERS BY OCCUPATION	CAREER LADDERS	MAJOR EMPLOYERS	HIRING CHANNELS	OCCUPATIONAL TITLES AND DESCRIPTIONS	INVENTORY AND DESCRIPTIONS OF EDUCATION AND TRAINING PROGRAMS	FINANCIAL ASSISTANCE	LABOR FORCE DEMOGRAPHICS AND TRENDS	ADDITIONAL SOURCES OF OCCUPATIONAL INFORMATION
BLS AREA WAGE SURVEYS	A 1											●															
CENSUS	A 2-3	●			●				●	●									●				●			●	
CES	A 4-5					●																					
CETA REPORTING	A 6						●																				
CPS	A 7-8									●									●							●	
DOT	A 9-11												●	●	●	●		●					●				
EMPLOYER DIRECTORIES																					●						
ESARS	A 12-13		●					●				●										●					
ESP	A 11-15				●						●																
ETA & SESA PUBLICATIONS																●											
HEGIS	A 16						●																	●			
INDUSTRY WAGE SURVEYS	A 17											●															
JOB BANK	A 18-19		●																								
JOB FLO	A 18-19		●																								
LAUS	A 20-21																									●	
LMI PROGRAM	A 22-25																									●	
NONCOLLEGIATE POST SEC. SURVEY	A 26						●																	●			
OCCUPATIONAL GUIDES AND BROCHURES	A 32												●	●	●	●	●	●				●					
OE GRANTS AND ASSITANCE PROGRAMS																									●		
OES	A 28-31	●		●									●										●				
OOH	A 33											●	●	●	●	●	●	●		●							
OSHA														●													
OTHER WAGE SURVEYS	A 47											●															
SCHOOL CATALOGUES																							●	●		
SNAPS	A 35-36						●																	●			
SOC	B 11-14																						●				
STATE APPRENTICESHIP AGENCIES, UNIONS, PROF. ASSN.	A 34											●							●	●							
STATE EDUCATION MIS	A 37						●																	●			
TABLE OF WORKING LIFE-VITAL STATISTICS	A 38				●																						
UI DATA	A 39-40					●		●													●					●	
VEDS	A 41-44						●																	●			
VOCATIONAL REHABILITATION	A 45-46						●																				

NOTES:

This matrix is intended to facilitate cross referencing to the appendices. Page numbers in the table correspond to the page numbers on the data source descriptions found in the appendices.

Data sources identified for each data category are not necessarily definite or comprehensive.

IV. DELIVERY OF OCCUPATIONAL INFORMATION

Thus far the paper has discussed the structure and content of an OIS. However, having good information is not sufficient. Effective delivery of occupational information must also be provided if the OIS is to be useful to planners, administrators, counselors, students and job seekers.

1. A USER ORIENTATION

Data producers, with guidance from the SOICC, must develop a user orientation. Occupational information must be developed, packaged and delivered in a manner that maximizes data utilization. A user orientation involves an analysis of user needs, the construction of products or services to match the identified needs, and the provision of training on the use and methods of obtaining OIS products and services.

A user orientation involves implementing actions to ensure that products and services are well received and easily accessed. Carefully formulated programs are required to achieve desired responses. The organization's products or services should be presented in terms of the needs of target user groups rather than in terms of the data producer's personal preferences. Efforts that try to promote a product, service, or idea that is not matched to the user's information needs are likely to fail.

A problem in developing a user orientation in many public sector organizations is an aversion to spending money on communications campaigns. Organizations seem to believe that "if the public needs our services, they will come and see us." Moreover, officials are hesitant to invest public funds in promotional activities which may be viewed as commercialism inappropriate to a public agency, or simply as an expenditure whose usefulness is hard to measure and therefore cannot be easily justified to financial supporters.

Effective promotion of OIS utilization involves assessing user needs, creating effective messages, choosing proper communication media, and evaluating the communication effectiveness. SOICC's have two primary tasks in promoting utilization of the OIS: (1) ensuring that OIS products satisfy user needs, (2) providing education and training on obtaining and using OIS products.

2. OIS PRODUCTS MUST SATISFY USER NEEDS

For occupational information to satisfy user needs, it must meet five requirements. Specifically, the information must be:

- Comprehensive--The information must meet the information needs of the user. The data must provide the level of detail or aggregation and time reference appropriate to the user.
- Timely--The information must be available when the user needs it. Agencies have different planning and operational cycles and thus require information at different times.
- Well Formated--The format or packaging of information is extremely important. Users are hesitant to utilize new data sources or to change their decision-making process. The data should be made available in a format that is tailored to the user. Computer printouts or on-line delivery of data should not be assumed to be desirable, but should be evaluated as an alternative format for delivering occupational information.
- Credible--The user must believe that the data is reliable if he or she is to use it. SOICC should attempt to build an image of excellence for all OIS products. If the OIS in general is assumed credible then the user should have little trouble in accepting any one information item.
- Accessible--Well planned procedures should be developed to provide access to OIS products and services. Each user group should have a process for obtaining their necessary information. SOICC should act to facilitate this dissemination process and simplify the information access process for the users.

3. OIS EDUCATION AND TRAINING

Comprehensive, credible, timely, well packaged, and accessible information must be complemented with user education and training. Users must be made aware of the OIS and then be shown how to obtain and use the available information. To facilitate user acceptance of OIS products, it is important that users develop a positive image of SOICC and the OIS. The stronger the image, the easier it will be to generate acceptance and use of OIS products. A positive image is developed by making available products that work.

Three techniques should be utilized in the training/education process. At times, the techniques can and should be used together.

- Personal Contact--Direct person-to-person contact is a very effective training approach. Personal contact involves presentations to small or large audiences. Examples of personal training and delivery methods include:
  - General statewide multi-agency conferences introducing users to basic data sources
  - Specific agency conferences
  - In-depth data use workshops with selected personnel from multiple or individual agencies
  - Individual user contacts to discuss unique problems
  - Ongoing direct contact via telephone, letter, or visitation
- Media--A wide variety of media can be used to train specific target groups. The media should be selected that can best communicate the desired message to the target audience. Key variables in the media selection decision are: complexity of the message; size, homogenity, and sophistication of the audience; and media cost per person trained. Media that can be used for training/educational purposes include: television, radio, pamphlets, fact sheets, newsletters, videotape, overheads, microfiche, slide tapes, and computer systems.
- Involvement In OIS Design And Development--Involving users in the design and development of OIS products promotes acceptance of the information. Involvement should lead to commitment and also provides training in the use of the data. Also, users may make contributions to data collection efforts that they perceive will fulfill their needs for occupational data.

V. A SOICC'S OPERATIONAL ALTERNATIVES FOR IMPLEMENTING THE OIS

The State Occupational Information Coordinating Committee (SOICC) is charged with coordinating the necessary resources to develop and implement an Occupational Information System (OIS). To achieve this goal, the SOICC must find a method of "operationally" satisfying the unmet occupational information needs of a variety of users while insuring that the currently satisfied occupational information needs continue as such. The structure and informational content of an OIS has been described in detail in Chapter III. This chapter explores the SOICC's operational alternatives for implementing the OIS. These operational alternatives are presented as processes by which occupational information can be systematically distributed to users. These process alternatives vary substantially, and dramatically impact the delivery capabilities associated with the OIS. The operational alternative selected for implementation by a SOICC will be a function of SOICC staff capabilities, the unmet occupational information needs of users, the existence of data production and data delivery systems in the State, the level of operating responsibility assigned to the SOICC, the access to computer support and the availability of funding from multiple sources. Each of these issues will be considered in defining the SOICC's operational alternatives for the OIS.

1. SOICC STAFF CAPABILITIES

The organization and capabilities of SOICC staffs can be categorized in two ways--a SOICC with a basic staff and a SOICC with an expanded staff. The SOICCs with basic staffs usually have two people, a director and an administrative assistant. The administrative assistant can be either a secretary, a data technician or an analyst. A SOICC with a basic staff is likely to function primarily as a coordinative entity, relying on personnel from their member agencies to assist in the OIS implementation effort.

By contrast, SOICCs with expanded staffs will have certain types of expertise resident on the SOICC staff. In addition to a director and a secretary, a SOICC with an expanded staff might have labor market analysts, researchers, statisticians, economists, planners, media or dissemination specialists, programmers, or system analysts. Because of the expanded staff capabilities, SOICCs in this category will require less personnel support from their member agencies in the OIS implementation efforts than SOICCs with basic staffs. However, SOICCs with expanded staffs will need to establish and maintain working relationships with agency personnel who will assure the technical reliability of OIS informational (data) input.

Regardless of the SOICC staff capabilities, the operational alternatives that exist for the development of the OIS are similar. In the implementation of the selected OIS operational alternative, however, SOICC operating strategies will differ according to these staff capabilities. Moreover, the actual selection of an OIS operational alternative will be impacted by the SOICC staff capabilities.

2. OPERATIONAL ALTERNATIVES FOR AN OIS

In defining the operational alternatives for an OIS, the key concept is the process by which occupational information will be assembled and distributed or disseminated. To a large extent, the routine dissemination capabilities of the OIS will be determined by the operational alternative selected for implementation. Specially planned events such as conferences or seminars are not considered routine dissemination capabilities. Instead, routine refers to the regular ongoing methods of disseminating information (i.e., on a day-to-day or month-to-month basis).

The determination of the appropriate operational process for an OIS in a State will be made by the SOICC committee and will depend on several major factors including:

- The existence of data production systems in a State, such as VEDS, OES, etc.

- The existence of data delivery systems in a State, such as the LMI Core Products, CIS, etc.
- The level of existing coordinative agreements relative to the production and delivery of occupational information in the State
- The structure and administrative constraints of the SOICC and the background of the SOICC staff personnel
- The availability of resources to the SOICC; primarily, personnel and funding, and secondarily, equipment and space
- The allocation of responsibilities to the SOICCs, above and beyond Federal minimums, including:
    - Governor's Executive Orders
    - Special State Laws
    - Authority over additional Federal programs by State agreement (e.g., Educational Information Centers)
- Changes in Federal legislation and/or policies that affect NOICC/SOICC operations

The SOICC should maximize the use of, and cooperation between, existing agency occupational information production and delivery systems in selecting an OIS operational process. Since the mandate of the SOICC is to improve coordination and communication and reduce duplication in the production and delivery of occupational information, it is critical that the OIS operational process be selected in consideration of the factors discussed above. For the purposes of this paper, four operational alternatives for OIS development will be defined. These OIS operational processes are preliminary concepts and should be developed further by the SOICC. Inherent in each concept presented is the need for training and dissemination activities. These activities will ensure that information in the OIS is understood in terms of institutional program planning and individual career decision making and will be required of the SOICC regardless of the OIS operational alternative selected for implementation.

The OIS operational alternatives presented below do not represent an exhaustive listing nor are the alternatives necessarily mutually exclusive; that is, an operating OIS in a State may combine aspects of the operational alternatives defined here. The four operational alternatives for OIS development include:

(1) An Information Clearinghouse--A SOICC could satisfy the informational needs of users by collecting occupationally related publications, pamphlets, or other materials and distributing/disseminating this information to requesting users. Potentially, these materials could satisfy the planning, career guidance, counseling. and job search occupational information needs of users. The SOICC does not necessarily need to physically maintain a document inventory. An information clearinghouse could also be created by establishing an index of available materials and developing a system for accessing individual items in the index using keywords.

(2) Publication Producing OIS--This OIS operational alternative involves the synthesis of information and data from various programs, agencies, and data sources into one or a series of publications that are tailored to the needs of the various user populations that must be served. During the process of synthesizing the necessary information, an analytical function will be required. The SOICC staff will provide the necessary analytical capabilities to support the development of the publications. The SOICC should also seek agency participation in this effort. The publications generated in this process must satisfy the unmet occupational informational requirements of users and should not duplicate existing publications.

(3) A Network Of Interrelated Programs And Systems--This OIS operational alternative may be appropriate to States having an existing Career Information System (CIS) . The CIS will satisfy the career guidance, counseling, and job search information needs of users, and another program or system (possibly computer-based, possibly not) will be utilized to satisfy the occupational information requirements of vocational education and manpower training program planners and administrators (e.g., the Labor Market Information Program). These systems should be linked by the common usage of data sources in the development of information. The program or system utilized to support the planners and administrators could disseminate information through publications or computer terminals.

(4) A Comprehensive Computer-Based System--This OIS operational alternative will entail the development and maintenance of an occupational information data base that can provide comprehensive information for program planning, career guidance, counseling and job search purposes. This data base would be accessible through computer terminals to various users. Data or information updates will be provided through participating agency programs and data collection efforts. The comprehensive computer-based OIS concept does not preclude the preparation and dissemination of appropriate publications.

The OIS operational alternatives described above represent a broad spectrum of processes. The actual process or OIS operational alternative selected for implementation will depend on the status of certain Federal and State programs within each State.

Included among these programs are the Labor Market Information (LMI) program[7] conducted by each State Employment Security Agency and the Career Information System (CIS) grants program previously funded by the Department of Labor[8]. A brief overview of each program and the relevant occupational information associated with each program is presented in the following program descriptions:

- Labor Market Information (LMI) Program--Labor Market Information is defined in guidelines that are issued to States by ETA as

  > "...that whole body of knowledge relating to labor force, employment, unemployment, wage, supply and demand, occupational, industrial and economic and demographic information for the analysis of manpower problems."

  As part of the LMI program, each State Employment Security Agency is required to produce certain core products each year. Two of these products, the Labor Market Information Newsletters and the Annual Planning Information, contain a wealth of labor force, employment, unemployment, and demographic statistics including some supporting analysis and discussion. In addition, employment developments by occupation and industry are covered in these products. Two other core products are specifically intended to satisfy the occupational information needs of CETA and vocational education planners. They are:

  - Annual Occupational Analysis Of Labor Supply And Demand (Occupational Information Program)--This product is intended to provide trends by industry and occupation and is also utilized in the preparation of related core products.

  - Planning Information For Vocational Education--This product is designed for the vocational education system in developing long-range plans as prescribed in the Vocational Education Amendments of 1968 and 1976.

  The LMI program can provide much of the information that is necessary in an OIS. However, funding constraints sometimes limit the preparation of core products within States. SOICCs should become familiar with the existing core products prior to any OIS implementation efforts.

- Career Information System (CIS) Program--The Division of Career Information Services of the Department of Labor has been mandated to:

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[7] For a more detailed discussion of the LMI Program, refer to Appendix A.

[8] NOICC is in the process of assuming responsibility for CIS.

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> "...encourage States to develop career information systems to provide occupational, educational, and training information to persons who are in the process of career exploration and decision making, especially students and out-of-school youth."

the eight States previously funded to develop a CIS through this grant program are Alabama, Colorado, Massachusetts, Michigan, Minnesota, Ohio, Washington, and Wisconsin. Oregon was the pilot state for the CIS program and now maintains an ongoing, self-supporting CIS.

The informational content of these systems includes various files such as occupational files, occupational preparation files, education program files, training program files, financial aid and assistance files, and bibliographic files. Specific occupational information included in these various files include the nature of occupational duties; personal, educational, experiential, and legal requirements for entry; wages and fringe benefits; current employment and employment outlook, industries that use the occupations; opportunities for promotion and career advancement; hiring channels; working and environmental conditions; descriptions of education and training programs related to the occupations; and sources of additional information that can help with occupational exploration and planning. These systems have utilized a variety of media including computers, microfilm and microfiche, films, filmstrips, videotapes, and printed materials. The sources of information for the CIS include many of the data sources or programs referenced in Chapter III and discussed in Appendix A. Among these sources are the Dictionary Of Occupational Titles, the Occupational Outlook Handbook, the Occupational Outlook Quarterly, Occupational Guides And Brochures published by the SESA, the Job Bank Opening Summary, and selected ESARS tables.

In summary, a CIS may satisfy the career guidance counseling, and job search needs of various users. In those States where the CIS program exists, the SOICC and the OIS should not duplicate or replicate this informational source, but should integrate the system into an appropriate OIS operational concept and process for that State.

* * * *

In determining the appropriate operational process for the OIS in their State, SOICC Directors must recognize the existence of the LMI and/or CIS programs and adapt accordingly. The principal purpose of the OIS should be to accommodate the unmet occupational information needs of users in the state. However, the OIS should also ensure that the currently satisfied occupational information needs of users continue to be met. For example, if the relevant LMI core products or a CIS satisfies adequately certain types of information needs then the OIS should build on that base. The OIS operational alternative selected for implementation must utilize the information base established by the LMI and CIS programs.

3. SOICC DECISIONS IN SELECTING AN OIS OPERATIONAL ALTERNATIVE

In selecting an appropriate OIS operational alternative for their State, SOICCs will be confronted with certain critical decisions. Basically, these decisions can be categorized along four dimensions or considerations:

(1) Existing organizational agreements and programmatic efforts

(2) Staffing

(3) Space, equipment, and computer hardware availability

(4) Funding

Exhibit 5-1, on the following page, summarizes the SOICC considerations that are associated with selecting an OIS operational alternative. It should be noted that the considerations presented for staffing, equipment, and funding for each OIS operational alternative are not mutually exclusive and can be used in combinations to increase the resources available for the OIS implementation. Each of the various decision dimensions will be discussed briefly below.

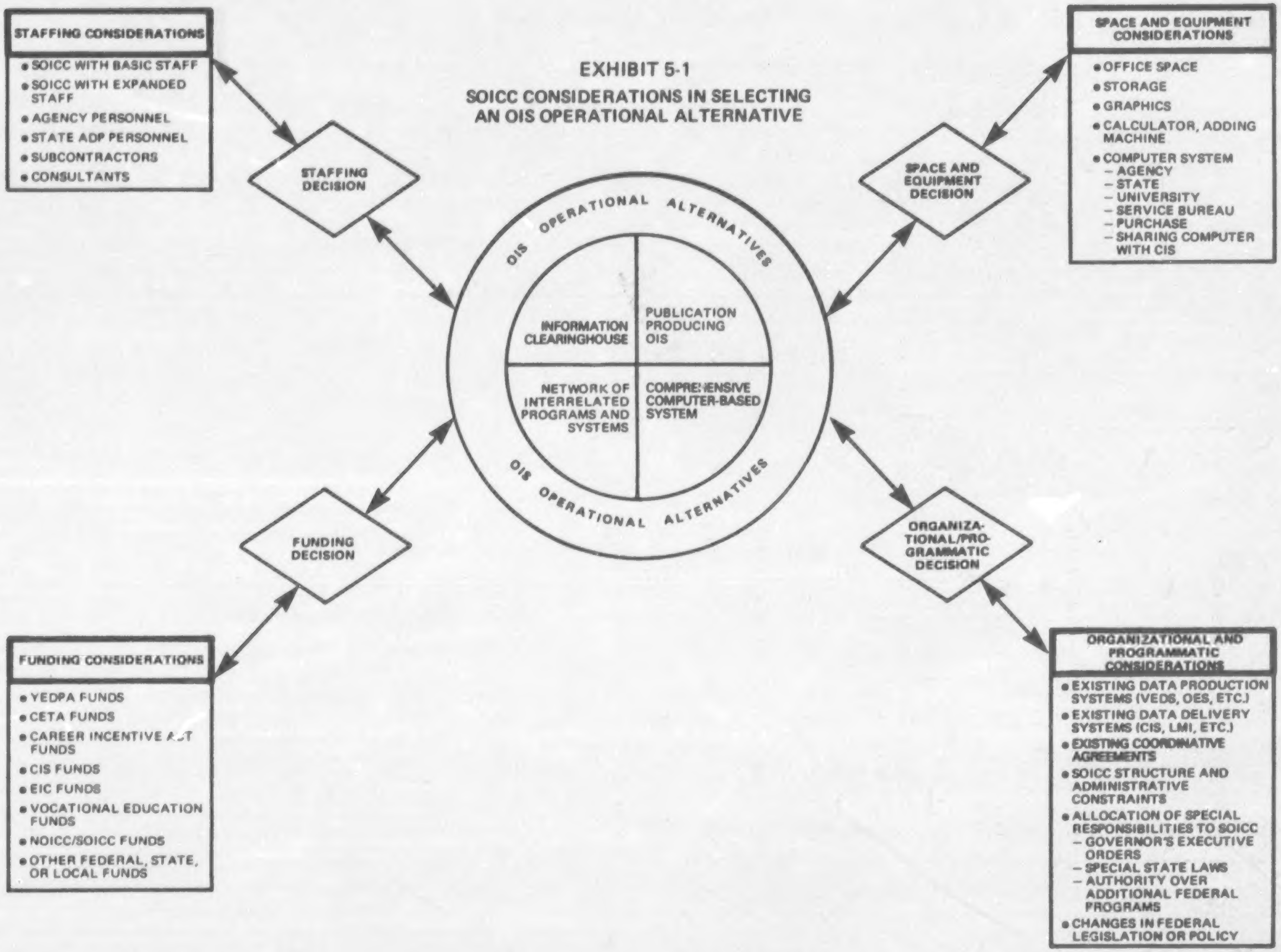
(1) Existing organizational agreements and programmatic efforts--As discussed earlier in this chapter, there are certain major factors that must be considered in selecting an OIS operational alternative. These factors are both organizational and programmatic and include:

- The existence of data production and data delivery systems (e.g., OES, VEDS, CIS, LMI Core Products, etc.)
- The level of coordinative agreements and the nature of the responsibilities of the SOICC with regard to certain programs
- The structure and administrative constraints of the SOICC
- Changes in Federal legislation or policy

(2) Staffing considerations--If the OIS operational alternative selected for implementation is not computer-based, then the required personnel resources to develop the OIS will be lessened. For the two distinctly non-computer-based alternatives (Information Clearinghouse and Publication Producing OIS) the SOICC staffing considerations will be:

EXHIBIT 5-1

SOICC CONSIDERATIONS IN SELECTING AN OIS OPERATIONAL ALTERNATIVE



STAFFING CONSIDERATIONS

- SOICC WITH BASIC STAFF
- SOICC WITH EXPANDED STAFF
- AGENCY PERSONNEL
- STATE ADP PERSONNEL
- SUBCONTRACTORS
- CONSULTANTS

SPACE AND EQUIPMENT CONSIDERATIONS

- OFFICE SPACE
- STORAGE
- GRAPHICS
- CALCULATOR, ADDING MACHINE
- COMPUTER SYSTEM
  - AGENCY
  - STATE
  - UNIVERSITY
  - SERVICE BUREAU
  - PURCHASE
  - SHARING COMPUTER WITH CIS

FUNDING CONSIDERATIONS

- YEDPA FUNDS
- CETA FUNDS
- CAREER INCENTIVE ACT FUNDS
- CIS FUNDS
- EIC FUNDS
- VOCATIONAL EDUCATION FUNDS
- NOICC/SOICC FUNDS
- OTHER FEDERAL, STATE, OR LOCAL FUNDS

ORGANIZATIONAL AND PROGRAMMATIC CONSIDERATIONS

- EXISTING DATA PRODUCTION SYSTEMS (VEDS, OES, ETC.)
- EXISTING DATA DELIVERY SYSTEMS (CIS, LMI, ETC.)
- EXISTING COORDINATIVE AGREEMENTS
- SOICC STRUCTURE AND ADMINISTRATIVE CONSTRAINTS
- ALLOCATION OF SPECIAL RESPONSIBILITIES TO SOICC
  - GOVERNOR'S EXECUTIVE ORDERS
  - SPECIAL STATE LAWS
  - AUTHORITY OVER ADDITIONAL FEDERAL PROGRAMS
- CHANGES IN FEDERAL LEGISLATION OR POLICY

STAFFING DECISION
SPACE AND EQUIPMENT DECISION
FUNDING DECISION
ORGANIZATIONAL/PROGRAMMATIC DECISION
OIS OPERATIONAL ALTERNATIVES
INFORMATION CLEARINGHOUSE
PUBLICATION PRODUCING OIS
NETWORK OF INTERRELATED PROGRAMS AND SYSTEMS
COMPREHENSIVE COMPUTER-BASED SYSTEM
OIS OPERATIONAL ALTERNATIVES

- Expanding SOICC staff resources as necessary
- Utilizing statutory agency personnel on a full-time or part-time basis
- Hiring outside consultants or subcontractors

If the OIS will be computer-based, then data processing specialists will be required. These personnel resources could be hired directly by the SOICC, could be detailed from agency staff, or could be assigned from a central data processing staff in the State. The SOICC should explore all of these staffing options in deciding what personnel resources will be utilized in developing and implementing the selected operational alternative.

(3) Equipment considerations--For non-computer-based alternatives, the equipment considerations are relatively limited. These alternatives depend on the specific nature of the OIS operational alternative selected in a State, and consist of equipment or computer support time necessary to implement the non-computer-based OIS. For computer-based OIS alternatives, the access to and availability of computer hardware is critical. The possible alternatives include:

- Utilizing a statutory agency computer system
- Utilizing a State's central computer system
- Utilizing a university computer system
- Contracting with a service bureau
- Procuring a new or refurbished computer system
- Sharing a computer with the CIS

Each of these options should be explored before deciding upon the computer resources that will in fact be utilized.

(4) Funding considerations--In addition to the funds provided through normal NOICC/SOICC funding channels, there are several other potential sources of funds that should be explored. Many of these sources of funds are directly linked legislatively with the NOICC and SOICC program. Included among these funding sources are:

- Youth funds through the YEDPA legislation
- Governor's discretionary or special project funds through the CETA legislation
- Funds for career exploration activities through the Career Incentive Act
- Career Information System (CIS) funds available through NOICC

- Education Information Center (EIC) funds through the Office of Education
- NOICC and SOICC special project funds
- Other Federal, State, and local funds as available
- Vocational Education funds

To the extent that the OIS operational alternative selected for implementation is computer-based, the funds required for developing the system could be substantial. In any case, whatever OIS operational alternative is implemented, the SOICC should explore all possible sources of funds.

* * * *

In summary, choosing an OIS operational alternative that will be implemented in a State will involve several decisions. Primary consideration should be given to assessing the unmet occupational information needs of the various users in the State. The OIS operational alternative implemented should be directly responsive to satisfying these unmet needs. In selecting an OIS operational process, the SOICC must consider existing organizational agreements and programmatic efforts, project staffing, equipment availability, and sources of funding. Each of these elements will be critical to the actual implementation effort. The OIS operational processes presented in this chapter in no way represent all of the potential alternatives for the OIS. These alternatives are presented to assist the SOICCs in beginning to consider what the OIS should be in their State. Each OIS, however, must fulfill certain user information needs, and this can be accomplished by incorporating the data sources discussed in Chapter III into an OIS operational process.

VI. A SOICC DIRECTOR'S STRATEGY FOR DEVELOPING THE OIS

The SOICC Director, as the operating head of the SOICC efforts in the State, must direct and coordinate the implementation of the OIS. This task is not a simple one and any additional resources that may be utilized in the process should be explored. Throughout this document SOICC activities have been suggested through the use of SOICC Activity Guidelines presented on buff colored pages. These activities can be briefly summarized in five basic tasks that a SOICC Director can perform. These tasks should result in an OIS concept, a defined OIS operational process, and an action plan for the development and implementation of the OIS.

Task 1--DETERMINE THE USER BASE AND MEET WITH POTENTIAL USERS

Although the Education Amendments of 1976 and the YEDPA and CETA legislation define the possible users of occupational information, the SOICC Director should attempt to define a State's user base through direct contacts. Who are the actual users or the target populations that the SOICC and the OIS will serve? At a minimum these might include vocational education planners, CETA planners, economic planners, guidance counselors, job seekers, students, and teachers. A SOICC Director, through direct contacts with representatives of these various user populations, can begin to understand and define the principal user groups who need occupational information in the State. Questions that should be answered in discussions with users should focus on the types of decisions made by various users. Questions might include:

- What type of occupationally related decisions do you make?
- What occupational information is needed to aid your decision-making process?

- Is the occupational information now available adequate for your decision-making process?

Assessments of the types of decisions made by users of occupational information will allow the SOICC Director to begin to define the potential SOICC activities that are of most benefit in a particular State.

Task 2--BECOME FAMILIAR WITH AGENCY PROGRAMS AND DATA SOURCES RELEVANT TO THE OIS

Essentially, this task involves the conduct of an occupational information inventory within the State. In assessing each program or data source that can provide occupationally related information for an OIS, the following key questions are appropriate for the data examination effort:

- What organization(s) conduct the program or provide the data?
- Who are the key contact persons within the organization(s)?
- What levels of detail are provided by the data?
    - Geographic
    - Classification structure
    - Time reference period
- In what format is the data available (hard copy, manual files, magnetic tape, etc.)?
- What exactly does the data cover? (explore double counting or data gaps)
- What users potentially need this information?
- Is the information sufficiently reliable to be used by the user?
- Does the data or information contain the appropriate categories for the user (e.g., age groupings, sex, race, income, etc.)?
- Is additional data collection or analysis necessary?

A determination of the occupational information that exists in a State is crucial to the development of an appropriate OIS concept.

Task 3--DETERMINE SPECIFIC USER REQUIREMENTS AND THE EXTENT TO WHICH THESE REQUIREMENTS ARE SATISFIED

Through a well constructed needs assessment process, the SOICC Director should ascertain the specific user requirements with regard to occupational information. Equally important, a determination of the requirements that are not being satisfied ("unmet needs") should be made. The principal purpose of this task is twofold. First, the SOICC Director can learn what informational requirements are being adequately satisfied by current means and thus prioritize the needs that the SOICC must address. Second, a determination of the extent to which current sources of information or data satisfies user requirements will provide a basis for suggesting program improvement initiatives. The degree of specificity in defining user requirements is critical to the ultimate capability to satisfy these requirements through an OIS.

Task 4--DEFINE THE OIS CONCEPT AND OPERATIONAL FORM FOR THE STATE

After conducting an inventory of available sources of occupational information and assessing specific user occupational information requirements and the extent to which they are or could be satisfied, the SOICC Director and his or her Committee should be able to define the OIS concept and operational process appropriate for the State. This concept and process should be directly responsive to the unmet occupational information needs of the various users in the State. In effect, the SOICC is establishing a market niche in the form of an identifiable product, program, or function visible to all concerned. This product, program or function will become the essence of the OIS and the "raison d' être" for the SOICC. The OIS concept and operational process determined by the SOICC must contribute concretely and visibly to satisfy unmet user needs.

Task 5--PREPARE AN ACTION PLAN FOR THE DEVELOPMENT AND IMPLEMENTATION OF THE OIS

Having decided upon a viable OIS concept and operational process, the remaining issue is how to make that concept and process a reality. The considerations for accomplishing this are principally related to staffing, equipment, and funding. Various alternatives with regard to each of these were discussed in depth in Chapter

V. When decisions have been made with respect to all available resources, the SOICC Director should develop a detailed milestone chart that presents in detail all of the necessary activities required to successfully implement the OIS for his or her State. A sample milestone chart that might be appropriate for planning purposes is included in Exhibit 6-1 on the following page.

EXHIBIT 6-1
SAMPLE MILESTONE CHART FOR OIS DEVELOPMENT AND IMPLEMENTATION ACTION PLAN

ACTIVITY	SCHEDULED COMPLETION DATE												REQUIRED RESOURCES (Personnel, equip, $)	ORGANIZATIONAL RESPONSIBILITIES	END PRODUCTS
	O	N	D	J	F	M	A	M	J	J	A	S			

REFERENCE TABLE FOR APPENDIX A

AGENCY PROGRAMS AND OTHER DATA SOURCES RELEVANT TO THE OIS

Data Source | Page

BLS Area Wage Surveys..A-1
Census...A-2, 3
Current Employment Statistics (CES) Program (BLS-790)................A-4, 5
CETA Reporting...A-6
Current Population Survey (CPS)..A-7, 8
Dictionary Of Occupational Titles (Data Display Tape)................A-9, 10, 11
Employment Service Automated Reporting System (ESARS)...............A-12, 13
Employment Service Potential (ESP).......................................A-14, 15
Higher Education General Information Survey (HEGIS)...................A-16
Industry Wage Surveys..A-17
Job Bank/Job Flo..A-18, 19
Local Area Unemployment Statistics (LAUS)...............................A-20, 21
Labor Market Information Program...A-22, 23, 24, 25
Noncollegiate Postsecondary School Survey...............................A-26
Noncollegiate Postsecondary Student Characteristics Survey...........A-27
Occupational Employment Statistics (OES) Program.......................A-28, 29, 30, 31
Occupational Guides and Brochures (Briefs and Monographs)............A-32
Occupational Outlook Handbook (OOH)......................................A-33
State Apprenticeship Agencies, Unions, and Professional Assoc........A-34
State and National Apprenticeship System (SNAPS).......................A-35, 36
State Education Management Information System (MIS)..................A-37
Table of Working Life--Vital Statistics....................................A-38
Unemployment Insurance Data (ES-202, ES-203, ES-210)..................A-39, 40
Vocational Education Data System (VEDS)..................................A-41, 42, 43, 44
Vocational Rehabilitation Management Information System (MIS)........A-45, 46
Wage Surveys--City and States, Employer Councils.......................A-47

DATA SOURCE: BLS Area Wage Surveys

Description:

This is an annual survey which provides data for occupations common to a wide variety of industries in 70 SMSA's throughout the Nation. The 76 occupational category studies include 29 for office clerical; 17 for electronic data processing, drafting and industrial nurses; and 30 for maintenance, toolroom, power plant and custodial and material movement jobs. Thus, they provide a representation of the range of duties and responsibilities associated with white-collar, skilled maintenance trades and other "indirect" manual jobs. Weekly salaries reported for individuals in white-collar jobs relate to regular straight-time salaries that are paid for standard workweeks. Average hourly earnings for maintenance and other manual jobs relate to first shift hourly rates.

Industry divisions covered are (1) manufacturing; (2) transportation, communication and other public utilities; (3) wholesale trade; (4) retail trade; (5) finance, insurance and real estate; and (6) selected service industries. Any establishment employing fewer than 50 workers is excluded from the sample. In the 13 largest communities, only firms in manufacturing, transportation, communication, other public utilities, and retail trade--and with a minimum of 100 workers, are included.

In addition to the all-industry averages and distributions of workers by earnings classes, separate data are provided for manufacturing and nonmanufacturing in each area, and wherever possible, for individual industry divisions in the nonmanufacturing sector. Separate data were provided for transportation, communication and other public utilities in 68 areas of the 70 in 1976; for retail trade in 32 areas; for wholesale trade and finance, insurance, and real estate in 18 areas; and for the selected service industries in 20 of the largest areas. In 31 of the larger areas, wage data are presented separately for establishments that have 500 workers or more.

Data on weekly work schedules, paid holiday and vacation practices, and health, insurance and retirement benefits are recorded separately for nonsupervisory office workers and plant workers (nonoffice). Shift operations and differentials are collected for plant workers in manufacturing. Data on minimum entrance rates for inexperienced office workers are collected in all industries. These items are studied every 3 years in all areas. This survey program also has developed information on profit-sharing plans, characteristics of sick leave plans, wage payment systems and other items related to employee compensation.

Limitations:

- Only limited geographic areas of the nation are covered.
- The surveys are limited as to the number and types of occupations which they include.

OIS Application(s):

Characteristics: May be used to provide data on wages for specific occupations

Technical References:

AWS Bulletin 1950 Series, U.S. Department of Labor, BLS.

DATA SOURCE: Census

Description:

The Census is a series of reports presenting statistics on the population and its general characteristics including race, sex, age, household and family characteristics, marital status, etc. for the nation, the 50 states, and the territories. The series consists of 58 "parts", issued, as of 1980, every five years and is based on a census or "head-count" survey of households in the United States and its territories. Some other occupational characteristics are collected by sample. The survey is usually conducted the second week of April. Detailed data are presented covering general social and economic characteristics such as nativity, disability, work status, school enrollment/ attachment, occupation, and income. Also covered are housing characteristics. Data are shown by States, counties, cities, blocks, and census tracts. Available to meet needs of census users are computer tapes which provide data in greater detail than is feasible to publish in printed reports. Six of these tapes are usually available on magnetic computer tapes, printouts, and microfilm at the cost of preparing the copy.

Limitations:

- Census information is not timely; data are approximately three years old when published.
- Data refer to place of residence; therefore, employment data may not agree with OES information which is based on place of work.
- Sampling error is high.
- Occupational titles are supplied by the interviewee and thus are subject to error and inaccuracies.
- Definitions are not provided for occupational titles.
- Occupational titles must be translated to Census occupational classifications and may be improperly coded.
- Some data are based on sample, and are subject to self assessment errors.
- Items reported may be changed from census to census so that definitions and coverage are not always comparable.
- Census occupational titles cannot be easily related to other occupational classification structures.
- Certain census data are based on samples too small to produce reliable estimates for specific geographical areas.
- Individuals who hold multiple jobs are counted only once.
- Census Occupational Classifications provide inadequate occupational detail for certain applications.

- Self-reported earnings may be misstated.

- Census earnings data are outdated and should be used only to compare levels of earnings across occupations.

- Occupational mobility data will not be collected in the 1980 Census.

- Data have limited use in calculating net mobility rates for occupations.

OIS Application(s):

Demand: Provides the basis for a matrix approach to demand projections when OES survey data are not available. The Census provides data on occupational employment levels. Census data can be used in analyses of the impact of occupational and geographic mobility on replacement demand.

Supply: Can be used in analyses of the impact of occupational and geographic mobility on labor supply.

Characteristics: Provides extensive detail on characteristics of the persons working in specific occupations.

Complementary: Is the most comprehensive source of demographic data on the population of the United States.

Technical References:

Alphabetic Index Of Industries And Occupations, Bureau of the Census, 1971

1971 Classified Index Of Industries And Occupations, September, 1971, U.S. Department of Commerce, Bureau of the Census

U.S. Census Of Population And Housing, Publications Distribution Section, Bureau of the Census, Washington, D.C. 20233; 1970

DATA SOURCE: Current Employment Statistics (CES) Program (BLS 790)

Description:

The Bureau of Labor Statistics cooperates in collecting data each month on employment, hours, and earnings from a sample of establishments in all nonagricultural activities including government. In 1975, this sample included over 160,000 reporting units. From these data a large number of series on employment, hours, and earnings in considerable industry detail are prepared and published monthly for the United States as a whole, for each of the 50 States and the District of Columbia, and for most of the metropolitan areas. The data include series on total employment, production or nonsupervisory worker employment, women employed, average hourly earnings, average weekly hours, and average weekly overtime hours (in manufacturing). For many series, seasonally adjusted data also are published.

In the collection of data on employment, payrolls, and hours, the BLS usually requests separate reports by establishment. However, when a company has more than one establishment engaged in the same activity in a geographic area, these establishments may be covered by a combined report.

Industry employment statistics published by BLS and the cooperating State agencies represent the total number of persons employed either full-time or part-time in nonagricultural establishments during a specified payroll period. In general, data refer to persons who worked during, or received pay for, any part of the pay period that includes the 12th of the month. However, at the national level, data for Federal Government establishments generally refer to civilian personnel who worked on, or received pay for, the last day of the month, plus intermittent employees who worked any time during the month (e.g., Christmas temporary employees of the postal service).

The primary collection of the current sample data is conducted by State agencies which have cooperative agreements with the BLS. In most States, this is the employment security agency, affiliated with the Employment and Training Administration, the organization which administers the State unemployment insurance program. In a few cases the State department of labor acts as the agency. The agencies mail schedules to a sample of establishments in the States each month. A "shuttle" schedule is used (BLS form 790 series); that is, one which is submitted each month in the calendar year by the respondent, edited by the State agency, and returned to the respondent for use again the following month. The State agency uses the information provided on the forms to develop State and area estimates of employment, hours, and earnings.

All national, State, and area employment, hours, and earnings series data are classified in accordance with the Standard Industrial Classification Manual. The program produces several tables that are released in various BLS publications including:

- Employment And Earnings, United States
- Employment And Earnings, States And Areas
- Monthly Labor Review

In addition, the data are disseminated through the publications of other Federal agencies including the Department of Commerce, the Federal Reserve System, and the Council of Economic Advisors.

Limitations:

- No occupational detail is provided, only industry employment figures.
- CES data are not directly comparable with ES-202 data because of differences in coverage; however, over time the trends are similar.
- There are some gaps in the local area coverage of the data.

OIS Application(s):

Demand: The CES provides employment data by industry.

Technical References:

BLS Handbook Of Methods, Chapter 3--Employment, Hours, and Earnings

DATA SOURCE: CETA Reporting

Description:

Currently CETA prime sponsors are required to report training activities by mode of training and length of program--not by field of study. New legislation, however, will require prime sponsors to give information on "enrollments, completions, job placements, and training related placements by detailed occupational or training code for classroom and on-the-job training programs." The required reports include a preapplication, master plan, annual plan, funding and financial analysis and participant records. The annual plan and reporting forms are mandatory. No awards may be made unless a completed annual plan application has been received. The regulations are in the process of being written. "Code" means any occupational or training code equivalent in detail to the SOC at the four-digit level.

It should be noted that about 20 percent of prime sponsors currently have automated management information systems capable of producing data to contribute to an OIS. Availability must be negotiated between the prime sponsor and the SOICC.

Limitations:

- Current ETA, DOL Quarterly Summary Of Participant Characteristics reports do not provide sufficient occupational detail.
- Data avilability and level of detail vary among prime sponsors.
- Reporting systems are not comparable among prime sponsors.
- Data may be duplicated in ESARS school enrollment reports.

OIS Application(s):

Supply: CETA reports under the new regulation will describe training activities by target occupation.

Technical References:

The Comprehensive Employment And Training Act Amendments of 1978, Forms Preparation Handbook, draft

ETA Handbook No. 311, ETA-DOL, February, 1979

Public Law 95-524, October 27, 1978, "Comprehensive Employment and Training Act Amendments of 1978."

DATA SOURCE: Current Population Survey (CPS)

Description:

The CPS is a sample survey of 55,000 households throughout the country. Data are collected monthly by the Bureau of the Census. Respondents in the sample are interviewed to obtain information on the labor force status of each household member aged 16 or over. National data are released monthly by the Bureau of Labor Statistics (BLS) as part of the current employment situation report. More detailed (averages) data are available annually. Special reports (Current Population Reports, Special Labor Force Reports) are issued periodically by the Census and BLS covering such topics as special groups in the labor force, and educational attainment. Data are published covering State and local areas on a more limited basis by BLS and Census.

The CPS provides detail on the economic and social characteristics of the population. It is the only source of data on the civilian noninstitutional population which is released on a regularly updated basis. It identifies persons who are in the labor force--either working (employed) or looking for work (unemployed)--and those who are not in the labor force. The CPS is a comprehensive current source of information on the personal characteristics such as age, sex, race, national origin, educational attainment, marital and family status. It provides distributions of workers by the number of hours worked and the occupations and industries in which they work. Data are published separately for metropolitan and non-metropolitan areas.

Since the early 1960's four studies of occupational mobility have been conducted through the monthly Current Population Survey. Data are tabulated for the Nation as a whole only and the published data must be retabulated for use in detailed supply analysis. The data show retention of workers in specific occupations from one year to the next. For example, data are available showing that 85 percent of all engineers remain engineers in the following year. Data also show the proportion of workers moving to other occupations and out of the labor force. Deaths are not accounted for because those who died during the past year are not in the current survey.

Occupational data are classified according to the structure used in the previous Decennial Census. In 1981 the data series will be shifted to the occupational structure to be used in the 1980 Census, which will be the Standard Occupational Classification, with some minor modifications.

Limitations:

- Data become more unreliable as they are disaggregated because of the small sample size.
- National data are unreliable for occupations without significant employment.
- The sample size is generally too small to permit accurate estimates of migration rates by occupation.
- Data from the CPS should generally be used to measure aggregate labor force activity rather than occupational and industrial employment for which better sources of data are available--the OES Survey for occupational employment and the Current Employment Statistics BLS-790 data for industry employment.

OIS Application(s):

Supply: Can be used to analyze labor market migration and occupational transfers on a National level.

Characteristics: Provides demographic data on workers in specific occupations.

Complementary: Provides demographic data on the labor market population.

Technical References:

Bureau Of Labor Statistics Handbook Of Methods For Surveys And Studies--Bulletin 1910, 1976, BLS, Chapters 1, 2, and 8

The Current Population Survey, Design And Methodology, Technical Paper No. 40, U.S. Department of Commerce, Bureau of Census

DATA SOURCE: Dictionary Of Occupational Titles (DOT)

Description:

(1) Background

Dictionary Of Occupational Titles (DOT) provides specific information about job requirements and organizes occupations into useful job families based on job technology and requirements. The DOT systematizes information on 21,741 different occupations. For each occupation the DOT describes typical work duties, knowledge and skills involved in performing jobs, and the general abilities and tolerances required of workers.

Originally established following the depression, based on the public employment service system's need for a comprehensive body of standardized occupational information and modeled after the British Dictionary Of Occupations, the first edition of the Dictionary Of Occupational Titles was published in 1939. Established by the Wagner-Peyser Act and assigned its primary mission of equitably and efficiently matching workers with jobs, the employment service required a uniform occupational language in all of its offices. Since its initial distribution, the Dictionary Of Occupational Titles has provided a standardized and systematically organized body of occupational information designed to assist in matching jobs and workers.

Central among the underlying assumptions on which the DOT is based are the ideas that: (1) work is organized in a variety of identifiable ways; and, (2) while every job in the U.S. economy is similar to a number of other jobs, every job is performed slightly differently from any other job. More than a decade of extensive nationwide research and verification form the nucleus of data in the new fourth edition of the DOT.

(2) 4th Edition

Based on an extensive occupational research program operated through the federal-State employment services system, Job Services, the fourth edition provides accurate, up-to-date descriptions for most occupations in the American economy. Such timely and accurate information is essential for job placement programs, the operation of employment counseling and career guidance programs, and as a base for the development of imaginative employment program planning and training programs. It contains the most comprehensive up-to-date occupational information on American job duties and requirements ever assembled in a single volume. Each occupational definition in the fourth edition is written in simple and concise language. A number of new features broaden and strengthen the data base, expanding information on the characteristics of jobs and the world of work. As were its predecessors, the fourth edition will be very useful to users of occupational information in the public and private sectors including but not limited to those in trade unions, professional organizations, school counselors, and educational and industrial personnel directors. The fourth edition reflects the sweeping technological changes that have taken place during the dozen years since the third edition was published.

Material in the new edition is based on extensive on-site analysis of the spectrum of jobs in the U.S. economy conducted by the Department of Labor Employment and Training Administration and affiliated State employment services. These analyses helped identify and define new jobs and verify existing occupational definitions or revise them to reflect current industrial practices.

Briefly stated, the fourth edition is a single volume dictionary which:

- Focuses on occupational classifications and definitions for nearly all jobs in the U.S. economy
- Contains comprehensive descriptions of duties and job-related information for more than 20,000 occupations
- Groups occupations into a systematic classification structure based on interrelationships of job tasks and worker requirements
- Is designed as a placement tool to facilitate matching job requirements and worker skills

Chief among new features in the fourth edition are the following:

- Complete revision of the 1965 edition; reflects the impact of changing technology on the occupational structure of U.S. industry.
- New format; occupational definitions are arranged on a basis of job relationships.
- Unique nine-digit code numbers are assigned to each occupation.
- Significant military occupations are included for the first time.
- Materials suggesting occupational limitations based on sex or age have been eliminated.
- Occupational definitions have been updated or verified; more detailed occupational information is included.
- Over 2,100 new occupations have been added, and 3,500 obsolete titles deleted.

One visible change is the condensation of the two volumes of the third edition into a single volume in the fourth. While the materials on worker traits and areas of work have been eliminated from the DOT, they will be issued as supplements to the fourth edition in a publication entitled Guide To Occupational Exploration. This guide, in addition to an occupational interest inventory oriented to the fourth edition, holds promise for expansive use of the DOT, especially by career and educational counselors.

Also available are the DOT data display tapes available from ETA. The tape is a computer listing of DOT codes and titles showing 3rd and 4th edition DOT codes, and General Education Development (GED), Specific Vocational Preparation (SVP) and physical traits requirements for each occupational title. Just recently published is Conversion Table Of Code And Title Change - 3rd To 4th Edition, Dictionary Of Occupational Titles, available from DOL at $6.00 per copy.

Limitations:

- Although more than 20,000 job titles are given, the DOT still does not cover all jobs in the U.S. economy.
- The number of job titles may hinder their use in career developments and planning activities.
- Definitions are composites and general, and may not be applicable at a local level.
- It does not contain any data relating to employment trends or job potential.

OIS Application(s):

Characteristics:	Provides substantial information on the characteristics of specific occupations
Supply/Demand Interface:	Provides a nationally accepted occupational classification system. Permits computerized aggregation of job openings, vacancies, workers, trainees, etc. by occupational category at definitive levels.

Technical References:

Dictionary Of Occupational Titles, Fourth Edition, U.S. Department of Labor, USGPO

DOT Data Display Tape; Employment Training Administration, Division of Occupational Analysis

DATA SOURCE: Employment Service Automated Reporting System (ESARS)

Description:

ESARS is a computerized reporting system in the Employment Security agencies which tabulates and cross tabulates operational transactions as they occur at the field office level. Transactions refer to activities such as new applications, renewals, counseling, testing, placement, openings received or cancelled, etc. ESARS also includes statistics on the individuals served by the field offices and provides a large number of characteristic elements including sex, age, ethnic group, occupational attachment, income, welfare and/or claimant status, veteran status, handicap, educational attainment, family status, etc. The report contains information on job openings serviced through the field offices and shows occupation, offered wage, industry, and expected duration.

ESARS tables are primarily concerned with providing cumulative data on individuals. The tables cross-classify services to individuals with the characteristics of those individuals. For example, all the characteristics, age, sex, etc., are available for each individual served through transactions such as testing, placement, and referral. An "individual served" type cell (data element) in ESARS will give an unduplicated count of total individuals who received a given category of service as defined by the cell. For example, an individual would be counted only once as tested regardless of how many times he was tested during a given fiscal year. In ESARS, characteristics of all active individuals are carried over from one fiscal year to another.

In ESARS, activity is reported by fiscal year, rather than calendar year. The term "year-to-date" refers to the fiscal year. All characteristics of Active Applicants in the Automatic Data Processing (ADP)--Applicant Master File at the beginning of the fiscal year are maintained for each such application throughout the year. Changes in status with respect to WIN, Food Stamp, Eligible Claimant, CETA, and Economically Disadvantaged characteristics are recorded as they occur. The time period covered by each table is recorded at the bottom of every printout.

ESARS Table 96 is especially important to an OIS because it is an occupation-specific table. It concerns applicants and nonagricultural job openings by occupation and is produced statewide and by local office. Table 96 is monthly, year-to-date. Total fully registered applicants available (i.e., applicants active at any time during the current fiscal year) are sorted by DOT code in ascending order. In addition, all nonagricultural unfilled job openings as of September 30 plus openings received during the current period are also sorted by DOT in ascending order. Next, the first three digits of the DOT codes are used to compile the "three-digit summary code" column in Table 96. Data on all applicants and/or job orders with identical three-digit summary codes are then used to generate on-line on Table 96. For example, codes 001.012-418, 001.034-182, 001.046, 001.091 and 001.099 would be included and used to generate the total code 001.

In addition to the three-digit summaries, a number of selected six- and nine-digit code totals are interspersed in the table immediately following the three-digit total in which it is counted.

Limitations:

- Data reflects only job openings reported to ES local officer (research indicates that these openings represent a relatively small share of total job vacancies)

- Data are limited to statistics collected for management purposes, not for labor market information.

- Data are limited to applicants flowing through ES field offices.

- Most studies show that wages reflected in ESARS are in the bottom quartile of wages and salaries paid in the occupations represented.

- Occupational coding detail is sometimes inconsistent (i.e., two-, six- and nine-digit DOT codes are used)

- Procedures for assigning a DOT code to a specific job opening vary among Employment Security local offices.

OIS Application(s):

Demand: Shows job openings at local level by occupation, wages, duration, etc.

Supply: Previous data on job applicants.

Characteristics: Provides wage information from job orders

Technical References:

ESARS Tables Interpreted "A Users Guide", South Carolina Employment Security Commission, Manpower Research and Analysis, January, 1979

ETA Handbook No. 309, (ESARS), ETA-DOL

DATA SOURCE: Employment Service Potential (ESP)

Description:

Historically, one of the key variables missing in labor market research, and especially that dealing with the U.S. Employment Service (ES), has been a quantifiable estimate of the total hiring activity taking place within a labor market area. In the absence of such a figure, researchers have utilized the available measures of labor market activity such as the level of employment or the unemployment rate as gauges of economic forces.

Even in the absence of overall estimates of hiring activity, it has been recognized that such a measure, while pertinent to broader analysis, is too encompassing for the ES per se. Practitioners have long recognized that a number of hiring transactions are outside of the reach of the ES. Examples of such hires would include those via union hiring halls or other such restricted placement concerns, rehires, etc. In essence, for quantitative estimates of hiring activity to be relevant to ES, they must be redefined to include only those in which the ES has some possibility of participating.

The concept, as it is redefined above, is of considerable importance in that it summarizes all of the economic and labor market forces impacting an ES in a single figure. The absence of such information has undoubtedly impaired the ES in both its day-to-day operations, and in attempts to improve its services through experimental designs.

The basic intent of the ESP methodology is to develop quantifiable estimates of the total number of hiring transactions within a given time frame in which ES had some possibility of participating. Essentially, this calls for (1) determining the total number of hiring transactions by major industy (i.e., mining, construction, etc.) within each local office area, and (2) adjusting these counts to reflect the various institutional and structural factors in each respective area precluding ES involvement.

The first step in this process is accomplished by using the records of the Unemployment Insurance Service. These records contain, for every employer covered under the program, quarterly documentation on each employee by employer containing social security number, name, total wages paid, and that portion of total wages subject to the UI tax. To produce counts of total hiring activity for a given quarter, a computer program was written which compares, by individual employer, all social security numbers occurring in the current quarter with the corresponding record for the immediately preceding quarter. By definition, any social security number occurring in the current quarter but not in the immediately preceding one, was counted as a hire. These counts were in turn aggregated by industry and local office area to produce total hiring activity counts.

These counts of hiring transactions must be adjusted to reflect the various institutional and structural factors precluding ES involvement in the hiring process. Two major institutional and structural factors can be readily identified: (1) hires via union hiring halls and (2) rehires. To develop estimates of ES potential, the unionization and rehire factors must be applied to annualized industry estimates of new hires by local office area.

Another indicator that is important in the Employment Service Potential (ESP) program is the measure of Employment Service penetration. This indicator can be derived by comparing job placements data by industry from ESARS to the new hires information calculated by the analysis of Unemployment Insurance records. This comparison is complicated in that ESARS data can be based on either individual or transaction counts. However, the data can be used to derive a rough estimate of Employment Service penetration.

Limitations:

- Data are 5 to 6 months old when available.
- Data are available for a limited group of states (only 18).
- Occupational specific data are not available.
- Wage record data are available only by company, not establishment and not necessarily by job location.
- Data for large companies are apparently less valid than for smaller (under 250 employee) firms.
- The ESP methodology does not apply in the thirteen wage request states that do not require employers to report employees' earnings quarterly.

OIS Application(s):

Demand: The ESP program provides indicators of worker replacements and net employment gains or losses

Supply: The ESP program provides rough measures of new hires to a firm which may be new entrants or reentrants to the labor force

Technical References:

ESP - A New Source Of Labor Market Information, Dr. M.S. Cohen, July, 1978. Paper prepared for National Commission on Employment and Unemployment Statistics and the Department of Labor

Nevada Employment Service Potential Project, James Hanna, Nevada Employment Security Department, December 1976

Series of Methodology Papers, Employment Data and Research Section, California Employment Development Department, 1977-78

DATA SOURCE: Higher Education General Information Survey (HEGIS)

Description:

The Higher Education General Information Survey (HEGIS) is a series of annual and periodic data collection instruments administered by the National Center for Education Statistics. This survey has been adopted by NOICC as a principal source of data for the OIS. HEGIS encompasses the universe of accredited public and private colleges and universities that grant Associate Degrees or higher. In addition, a limited number of proprietary schools are included. Enrollment data by level of study, but not by field of study, and data on degrees conferred, by level and field of study are collected. Data are available on computer tape at the institution level and can be aggregated to any desired geographic area.

The HEGIS taxonomy has been unique. For upper-level programs it has been generally considered sufficiently detailed for planning purposes. For lower-level programs the codes (5000 series) have been criticized as being too broad, and are expected to be revised to correspond with the proposed VEDS taxonomy.

Limitations:

- The HEGIS taxonomy is unique and has limited detail; however, plans call for modifications to increase comparability with the proposed VEDS taxonomy.
- The 5000 series code overlaps with category 16, Technical Education, in Handbook 6.
- No definitions are provided except at the group level.
- Limited follow-up studies are conducted.
- There is a lack of awareness of unpublished data that are only available on computer tapes or microfiche.
- Non-accredited colleges and universities are excluded from HEGIS.
- There are no follow-up data to permit estimates of occupational supply from the different fields and levels of study.
- Although completion data are available by field of study, enrollment data are not.

OIS Application(s):

Supply: Provides data concerning college and university training.

Complementary: Provides information on existing education/training institutions

Technical References:

Projects, Products, And Services Of The National Center For Education Statistics, USGPO, 1976.

A Taxonomy Of Instructional Programs In Higher Education by R.A. Huff and M.O. Chandler, DHEW-OE and NCES.

DATA SOURCE: Industry Wage Surveys

Description:

Industry wage surveys provide data for occupations selected to represent the full range of activities performed by workers. Consideration also is given, in their selection, to the prevalence in the industry, definiteness and clarity of duties, and importance as reference points in collective bargaining.

In addition to collecting straight-time first-shift rates (or hours and earnings for incentive workers) for individual workers in the selected occupations, surveys in most industries also establish the wage frequency distribution for broad employment groups, i.e., production and related workers or nonsupervisory workers. Weekly work schedules; shift operations and differentials; paid holiday and vacation practices; and health, insurance, and retirement benefits are included in the information collected, along with the provisions made for other items, applicable to certain industries. The studies also provide estimates of labor-management agreement coverage, proportions employed under incentive pay plans, and the extent to which establishments provide a single rate or range of rates for individual job categories.

Fifty manufacturing and 20 nonmanufacturing industries, accounting for about 22.5 million employees, are surveyed on a regularly recurring basis. A majority are studied on a 5-year cycle, but a number of comparatively low-wage industries are on a 3-year cycle. In addition, special wage surveys also are undertaken at the request of others.

Nearly all of the manufacturing, utilities, and mining industries are studied on a nationwide basis and estimates are provided also for regions and major areas of concentration. Surveys in trade, finance, and service industries usually are limited to a number of metropolitan areas. Nationwide surveys generally develop separate estimates by size of establishment, size of community, labor-management agreement coverage, and type of product or plant group.

Limitations:

- The number of industries covered by these surveys are limited.
- Data for certain industries will not be reliable for State and area wage estimates.
- The occupational detail for which wage data are available may be limited by survey constraints.

OIS Application(s):

Characteristics:	Industry Wage Surveys provide data on wages paid in certain occupations in various industries.

Technical References:

BLS Handbook Of Methods, Chapter 18--Occupational Pay and Supplementary Benefits

DATA SOURCE: (1) Job Bank Openings Summary Data (JBOS)
(2) Job Bank Employment Service Reports
(3) Job-Flo--Job Bank Frequently Listed Openings; Job-Flow Occupation Summary

Description:

(1) JBOS--This is a monthly report which provides information on job opportunities listed during the preceeding month with the public employment service Job Bank system. The data appear on microfiche, and include State, job bank district, number of job openings available, number unfilled-end-of-month, number 30 days old or more, occupational category and six-digit occupational code, employer job title, and pay scale (range).

(2) Reports--A computer listing of all unfilled job openings, as of a given day, which are listed with the State Employment Security field offices where such a bank is installed. In some states the Job Bank covers the entire State; in other states, one or more cities or counties are covered. Some states do not have a Job Bank. Some State ES agencies with Job Banks publish monthly or quarterly reports that summarize the data.

(3) Job-Flo--This summary, available monthly as a publication, presents frequently listed, full-time, permanent job openings that were available at public job services offices during the month. The summary shows data by DOT code and employer job title. The individual district Job Bank reports show industrial code of employer placing the order, number of openings in the occupation, wage range, and number of openings left unfilled at the end of the month. Also included are the number of years of education and months of experience required by the employer.

Limitations:

(1) JBOS

- Data reflects only those job openings reported to ES local officer.
- Information is historical and represents only a small part of the total job market activity in a limited number of occupations and areas.
- Data are available only on microfiche cards.
- Procedures for assigning a DOT code to a specific job opening vary among Employment Security local offices.
- Not all areas in states have job bank program. Distribution of job bank information with employer's name attached is sometimes prevented by state disclosure laws.

(2) Reports

- Data are available on computer tape only for most states.
- Data refer only to openings received by ES field offices.

(3) Job-Flo

- Coding is limited to six-digit DOT codes which may not always be correctly applied.

- Data are limited to those states or areas within states which have job banks.

- Industry code and title is sometimes shown as "Employment Agencies."

- Wages show minimum, average, and maximum for total occupational group; the salary range may be very broad and does not provide the specificity necessary for individuals.

OIS Application(s):

Demand: JBOS provides indicators of current/comparable job openings available in Job Bank areas in various parts of the nation.

Job Bank Reports show "hard-to-fill" jobs and wages offered, by occupation.

Job Flo provides some indication of job vacancy status in certain areas at a given point in time.

Characteristics: Indicates some wage scale information by occupation and may reflect supply-shortage status by occupation. Trends may be obtained by manual posting of data.

Technical References:

U.S. Department of Labor, ETA, U.S. Employment Service, Office of Technical Support, Washington, D.C.; State and Job Bank offices of State Employment Security Agencies

DATA SOURCE: Local Area Unemployment Statistics (LAUS)

Description:

Unemployment estimates for States and local areas are developed by State employment security agencies to measure local labor market imbalance and hence are a key indicator of local economic conditions. These estimates are used by State and local governments for planning and budgetary purposes and as an indication of the need for local employment and training services and programs.

Under the Federal-State cooperative program, the Department of Labor develops the concepts, definitions and technical procedures which are used by State agencies for the preparation of labor force and unemployment estimates. Federal agencies use local area unemployment estimates to determine the eligibility of an area for benefits in various Federal assistance programs, such as the Comprehensive Employment and Training Act (CETA), the Public Works and Economic Development Act (PWEDA), the Concentrated Employment Program (CEP), and others.

In the development of unemployment estimates, three broad categories of unemployed persons are identified: (1) those who were last employed in industries covered by State Unemployment Insurance (UI) laws; (2) those who were last employed in noncovered industries; and (3) those who were either entering the labor force for the first time, or were reentering the labor force after a period of separation.

In the current month, the estimate of unemployment is an aggregate of the estimates for each of the three categories. An estimate for the covered category was derived from a count of current (UI) claimants and estimates of claimants whose benefits have been exhausted, persons who were disqualified from receiving benefits, and persons who filed claims late, or not at all. The estimates of persons who have exhausted their benefits and those in a disqualified status are based on the number actually counted in the current period, plus an estimate of those expected still to be unemployed from previous periods.

For the noncovered category, an estimate of unemployment is developed for each industry or class of worker subgroup. These estimates are based primarily on the "State covered unemployment rate" (the ratio of covered unemployment to covered employment), and the estimate of employment for the subgroup. For some subgroups, special scaling factors, based on relationships derived from national industry data, are used to control the size of the final estimate.

The third category, new entrants and reentrants into the labor force, could not be estimated directly from the UI system statistics because unemployment for these persons was not immediately preceded by a period of employment. Instead, an equation was developed to estimate total entrants into the labor force on the basis of the historical relationship of entrants to the experienced unemployed and the experienced labor force.

Limitations:

- There is no occupational detail in the LAUS program.
- Data are used for funds eligibility and allocation purposes and have limited direct applicability for use in an OIS.

OIS Application(s):

Complementary: LAUS data provide indicators of labor force trends

Technical References:

BLS Handbook Of Methods, Chapter 8--Measurement of Unemployment in State and Local Areas

New Procedures For Estimating Unemployment In States And Local Areas, (Report 432), U.S. Department of Labor, Bureau of Labor Statistics

DATA SOURCE: Labor Market Information (LMI) Program

Description:

In guidelines issued to the States by the Employment and Training Administration (ETA), labor market information is defined as:

> "...that whole body of knowledge relating to labor force, employment, unemployment, wage, supply and demand, occupational, industrial and economic and demographic information for the analysis of manpower problems."

At the State level, the State Employment Security Agency (SESA) is responsible for the implementation of the LMI Program. This effort includes the preparation of basic LMI core products, which are prepared for States, SMSAs, and in some cases for CETA prime sponsor areas. The development of these core products is dependent upon data from many of the other data sources summarized in this appendix. For example, industry employment data is provided by the ES-202 report, occupational employment data is provided by the Census or OES survey, and unemployment data is provided by the Local Area Unemployment Statistics (LAUS) program or UI reports. The LMI core products contain much of the information that is essential to the OIS. For FY 1980, the SESAs will be preparing the following core products (subject to funding limitations):

- LMI Newsletters
- Annual Planning Information (API)
- Occupational LMI
- Planning Information for Vocational Education
- A Directory of Labor Market Information
- Affirmative Action Information
- LMI or Special Worker Groups
- LMI Research

In the following paragraphs, brief summaries of the FY 1980 requirements for each of these core products are presented.

(1) LMI Newsletters should be prepared on a monthly basis for each State and Standard Metropolitan Statistical Area (SMSA) and for as many additional labor market areas as time and resources permit. The Newsletters should be released by the end of the month following the reference month and should review significant changes since the previous month and a year ago in employment and unemployment conditions for the State or area. Newsletters should also be used to announce the availability of new LMI publications as well as discuss events that may impact on labor market conditions in the State or area. Because the Newsletters are sent to a wide range of readers, emphasis should be placed on improved graphics in order to enhance the appearance of the publication and to make it easier to comprehend the tabular data provided.

(2) The Annual Planning Information (API) should be prepared once a year for all States, SMSAs, and CETA prime sponsor jurisdictions. The API is intended for use primarily by SESA and CETA planners but should be disseminated to other LMI users as well (vocational education authorities, State Occupational Information Coordinating Committee, Career Information Service, major employers, union officials, etc.). The API should provide historical, current and outlook information on employment, unemployment

and occupational trends, as well as numbers and characteristics of the population and labor force, unemployed, economically disadvantaged, underutilized persons, and other special groups. The API should be released in time for SESA and CETA planners to meet their respective deadlines and no later than May 31.

(3) Occupational LMI should be prepared for a wide range of data users. Because it is unlikely that a single publication can meet all the needs for occupational data, SESAs should prepare separate occupational LMI publications which provide specific types of occupational LMI. The publications of occupational LMI can vary from State to State, depending on the availability of occupational data in each SESA. However, each SESA should provide the fullest amount of occupational LMI possible, consistent with data availability, to meet the needs of data users. Following are examples of some of the types of occupational LMI publications which SESAs can prepare:

1. Quarterly supply-demand analysis (short-term)
2. Wage data (either wage surveys or a wage bibliography)
3. OES survey data (in survey States only)
4. Occupational projections (long-term)
5. Job search information (hiring specifications, working conditions, unionization, hiring practices, licensure and other requirements, location, hours of working, commuting, etc.)

The various occupational LMI publications may be prepared by the SESAs throughout the year as data for the States and areas become available.

(4) Planning Information For Vocational Education should be prepared annually for each State and SMSA. The information should include an analysis and tabular data concerning employment requirements in those occupations for which vocational education training would be appropriate. The information should be made available to State and local vocational education authorities by the end of the second quarter of the fiscal year, i.e., March 31.

(5) A Directory Of Labor Market Information should be prepared which will serve primarily as a catalog from which users can access SESA LMI publications. The Directory should contain a complete listing of all SESA LMI releases and publications prepared on a regular basis plus a listing of periodic releases, one-time studies or analyses. Utility will be enhanced by incorporating listings of labor market areas and key persons to contact for information, including local labor market analysts. The Directory should be updated at least every two years and more frequently if changes warrant.

(6) Affirmative Action Information. SESAs should provide the LMI needed by Federal contractors and subcontractors for their affirmative action programs as specified by the Office of Federal Contract Compliance Programs (OFCCP). The present guidelines for preparing such LMI (RAL 816) are being revised. SESAs may continue to use the RAL 816 guidelines until the revised guidelines are available.

(7) LMI On Special Worker Groups. This represents a modification of the previous LMI core product requirements involving the preparation of special publications on women, youth and veterans. In order to provide the SESAs with more flexibility in providing the types of data which are most appropriate for their State and areas, the SESAs are now able to select, beginning in FY 1980, the special worker group for which information will be provided each year. SESAs need provide only one publication during a fiscal year, although more than one special worker group may be covered if desired. The LMI publications on special worker groups should be selected from the following:

- Youth publication
- Publication on women
- Veterans publication
- Publication on blacks and/or Hispanics

The LMI on special worker groups should cover the State at a minimum, plus as many SMSAs within the State as data will permit. The publications should provide characteristics data (age, race, sex, etc.) on the population of the special group as well as the number of employed and unemployed. Because only one of the special publications are required during the fiscal year, each publicaton would be updated once every four years in those SESAs electing to address all four special groups. Updates would occur more frequently in those States which cover fewer of the special groups.

(8) LMI Research. This is a new LMI core product and reflects the importance of maintaining an active LMI research capability in the SESAs. In order to permit the SESAs to undertake such research, the quarterly LMI Review is elminated as a required core product, beginning in FY 1980, although SESAs may continue to prepare such Reviews (or reduce their frequency) if they wish to do so. In place of preparing the quarterly LMI Reviews, the SESAs must carry out at least one research project each year. Examples of the types of research which SESAs might consider include:

- Worker commuting studies
- Detailed industry analyses
- Research on energy
- Utilization of ESP for LMI

The above items are only suggestions; SESAs may elect to conduct other types of LMI research which are more appropriate for the State or areas. One copy of the findings should be sent to the National office. Studies which are of wide interest will be distributed by the National office to all SESAs.

* * * *

Several pieces of Federal legislation require the application of labor market information. The most significant pieces of legislation include:

- The Wagner-Peyser Act (1933), which requires a system to collect and furnish information on opportunities for employment and for operating the system of public employment offices created by the Act

- The Public Works And Economic Development Act (1965) which uses labor market information to identify areas of substantial and persistent unemployment and for resource allocation.
- The Comprehensive Employment And Training Act (1973), which requires local data for program planning by CETA prime sponsors, as well as national and local data for use in resource allocation (this Act also contains a specific section on labor market information).
- The Public Works Employment Act (1976) for resource allocation based on local unemployment levels; and information for funding priorities and establishing the National Occupational Information Coordinating Committee.

In summary, the Labor Market Information (LMI) Program should provide much of the information essential for the OIS. This resource should be fully utilized in OIS development efforts.

Limitations:

- The preparation of the core products is dependent upon the existence and quality of Federal/State statistical or data collection programs. Shortcomings in such programs will result in incomplete core products.
- Funding levels may constrain the preparation of all suggested core products in a fiscal year.
- Core products vary in content and format from State-to-State, thus limiting the comparability of data.

OIS Applications:

All Components: The LMI core products provide in publication form much of the data that are essential for OIS users.

Technical References:

The Labor Market Information System Of The Employment And Training Administration, U.S. Department of Labor, Employment and Training Administration (Reprinted from ETA Interchange)

Employment and Training Administration guidelines to State Employment Security Agencies

DATA SOURCE: Noncollegiate Postsecondary School Survey

Description:

The postsecondary school survey is conducted biennially by the National Center for Education Statistics in even-numbered years. Survey forms are mailed to all known public and private (proprietary and nonprofit) schools that offer occupational programs at less than the baccalaureate level. (The survey excludes HEGIS schools.) Enrollment data, by sex and full-time/part-time status, are collected for each program offered and coded by USOE classification system. A directory of schools is published shortly after all the returns are processed. From this survey, each State is sent its list of postsecondary schools. More detailed data on enrollments are available through the computer tape within three months of the close of the survey.

During the course of the survey, a 25 percent nationally representative sample of the schools are sent a longer form to gather data for each program offering on charges, length of program, number of completers and number of leavers with a marketable skill. These data are weighted to represent national totals only. Results of these data are published in Enrollments and Programs and are also available on computer tape.

NCES encourages State OICCs to participate in these studies, especially in the sample. For example, a sample of schools could be selected within the State to supplement the schools selected in the national sample. This would enable States to learn more of the private school offerings and related information.

Limitations:

- Data are not collected annually.
- Completer/leaver data for each school are not available for 1978 and previous years. However, this question has been added to the survey form for 1980.
- Charges and duration of program are available only on national basis. Participating States, however, can sample their schools to gather these data.

OIS Application(s)

Supply: Provides information on enrollments in all proprietary and nonprofit schools as well as individual public schools.

Complementary: Provides listings of institution and program offerings

Technical References:

Directory Of Postsecondary Schools With Occupational Programs, 1978

Enrollments And Programs In Noncollegiate Postsecondary Schools, 1976

Computer tapes available from NCES EDSTAT.

DATA SOURCE: Noncollegiate Postsecondary Student Characteristics Survey

Description:

The postsecondary students survey is conducted biennially by the National Center for Education Statistics in odd-numbered years. Survey forms are mailed to a sample of 6,000 students selected from a sample of 600 schools, using the Postsecondary Directory as the universe. Information is collected from each student on demographic characteristics (age, sex, racial/ethnic group, military status), work history and plans, education history and plans, reasons for selecting program and school, labor force status, current job, parents' education and occupation. Results of the survey are available on computer tape within three months of the close of the survey. Programs are coded by USOE classification system.

Limitations

- The data are not collected annually

- The data, per se, cannot be used for analyzing supply in each State unless the State elects to supplement the sample to sample their own State.

Technical References

Computer tapes available from NCES EDSTAT

Detailed description of sample and conduct of survey available from AVSB, NCES

DATA SOURCE: Occupational Employment Statistics (OES) Program

Description:

(1) Background:

The Occupational Employment Statistics (OES) Program is a Federal-State cooperative program designed to produce State and area data on current and projected occupational and industrial employment for use in planning education and training activities. It provides a systematic, conceptually and methodologically consistent approach for the development of these data among the cooperating State employment security agencies and is an important element in the system of labor market information program of the Employment and Training Administration.

The OES program has three elements. Briefly, they are as follows:

(1) The Occupational Employment Statistics Survey--a mail survey designed to collect current data on wage and salary employment by occupation and industry from nonfarm establishments. The surveys are currently carried out in 45 states over a 3-year cycle.

(2) The National/State Industry-Occupation Matrix System--a set of tables (one for each State and the District of Columbia) that, for a specific period of time, shows total employment in specific occupational categories, cross-classified by industrial sectors and class of worker categories, which are used as a principle tool in preparing estimates of current employment and projections of occupational requirements for States and sub-State areas.

(3) The State and area Occupational Projections Program--a program for developing and preparing estimates and projections of occupational requirements for States and areas.

(2) Program Elements:

(1) Occupational Employment Statistics Survey

The OES Survey is designed specifically to collect statistics on employment by detailed occupation and industry, and to obtain occupational estimates for the Nation and for the cooperating State agencies. It is a periodic mail survey conducted by State employment security agencies of a sample of nonfarm establishments to obtain wage and salary employment by occupation. The survey is conducted over a 3-year cycle (manufacturing industries one year; nonmanufacturing, except trade, the second year; and trade industries the third year). These data are used to estimate total employment by occupation and by industry for each State and for areas within each State. Employment information is currently being collected for fewer than 1,900 occupations.

A specially prepared list of occupations has been designed for each industry or for each group of industries that generally has the same kinds of occupations.

The OES sample is designed to yield reliable industry occupational estimates for the participating States and areas within those States. The sample members are selected primarily from the lists of establishments reporting to the State unemployment insurance program.

The sample design initially stratifies the universe of establishments by industry. All establishments employing 250 employees or more are included in the sample. In some industries and States the level of employment for establishments included with certainty is less than the 100 employees or more level. For establishments not included in the sample with certainty, an optimum allocation design is obtained by stratifying the industry by size classes and sampling the size classes with probability proportionate to the amount of employment contained in those size classes. Within each industry size stratum, the sample members are randomly selected.

The occupational distribution of the reporting respondents in each industry by size class is determined by deriving the ratio of the sum of the employment in each occupation to the sum of the total employment of the corresponding reporting establishments. These distributions then are multiplied by the corresponding benchmark estimates of total employment in that size class. Estimates for occupations in each industry group are derived by summing all the occupational size class estimates within that industry group. Similarly, the estimates of combined industry groups are derived by summing the individual industry components.

(2) The National/State Industry--Industrial/Occupation (I/O) Matrix System

The purpose of this program, which is being developed in cooperation with the Employment and Training Administration and State employment security agencies, is to assist in the development of estimates of current occupational employment, and projections of occupational requirements at the State and local levels.

The National/State Matrix System was developed in response to the employment and educational legislation of the past decade, which has continuously emphasized the need for more and better information concerning current and future local labor market conditions. Recent moves to decentralize the responsibility for employment planning and training activities to State and local jurisdictions should add even further to the demands for the information produced through this system.

The National/State Industry-Occupation Matrix System is basically an extension of the national matrix program. The system is designed to provide a set of 51 (all States and the District of Columbia) individual matrices, or tables, that present total occupational employment, cross-classified by industrial sectors, for a specific period of time. The system further provides for the development of matrices for the sub-State areas, usually Standard Statistical Metropolitan Areas. It also includes death and retirement rates by occupation for each State, which are used to estimate total occupational openings. A flexible, multi-purpose computer system will permit cooperating State employment security agencies to update their matrices as required, prepare sub-State matrices, incorporate data from the Occupational Employment Statistics (OES) Survey into the matrix system, and develop projections of occupational requirements by industry sector. By integrating the occupational employment estimates derived from the OES Survey into the matrix system, the States have the most detailed occupational employment data base ever available to all States. Currently, 27 states have an Industry/Occupation Matrix based on OES survey data.

The matrix is a tabular listing of data in industry-employment columns and occupational-employment rows, forming a grid which can be used either horizontally or vertically.

(3) State and Area Occupational Projections

The OES program is aimed toward the development of reliable estimates of current and projected occupational requirements data at the State and area levels, and ultimately, for the Nation. Although the OES survey is not performed in all States, projections are developed for all States. Systematic, standardized procedures for the State agencies to use in the development of occupational employment information for the States and areas within the States are being developed.

This Federal/State cooperative program places the responsibility for preparation of State and area occupational projections in the State employment security agencies. These agencies are the source of essential State employment statistics and have knowledge of current and prospective State and area economic conditions that are needed to make reliable industry and occupational projections. Each of the principal organzations have certain responsibilities. To further the objectives of the program, research is done by the State agencies that is incorporated into the system, as is their insight concerning the needs of data users.

The State and area projections produced through this program provide a measurement of the magnitude of change in occupational employment requirements over the projection period. They are not intended to be precise measurements of future occupational employment levels. No attempt is made to adjust the projections for cyclical movements in the economy.

The projections are updated frequently to reflect the latest available data and the knowledge of economic conditions, including plant closings and openings; technological innovations; and other factors necessary to produce the most reliable projections possible. To further this end, the State agencies responsible for the projections are encouraged to consult representatives of industry, labor, and other government agencies during the developmental process to incorporate the widest possible knowledge concerning the economic area for which the projections are being developed.

Limitations:

(1) OES Survey

- All surveys are subject to possible response and processing errors. These are reduced through reviewing, editing, and screening procedures and through contact with reporters.
- Estimates derived from sample surveys are subject to sampling error. In this program, sampling errors for occupational employment estimates are calculated and normally published with the estimates.

- The survey's geographical detail is currently limited to selected SMSA's and statewide.
- All industries are not covered by the survey.
- Not all states participate in the OES survey.
- Self-employed, schools, health care services, local/state government, and agricultural workers are not covered by the OES survey although indirect estimates can be made utilizing census data.

(2) OES Matrix

- The current State matrices available to State agencies are based on data derived form several sources including the Census of Population, industry employment data obtained from regulatory and licensing agencies, and other sources of occupational information. Data from the various sources frequently differ in employment concept and definition; hence, the employment estimates are subject to the problems associated with analysis and adjustment. The data then indicate the relative importance of an occupation to other occupations within each industry goup. Consequently, the occupational estimates in the matrices should be used with caution, and should not be viewed as precise measurements. In addition, while the census-based matrices are restricted to about 1,700 occupations, the additional detail to be provided by the OES survey data should increase the utility of the system and reliability of the estimate. The surveys at this time do not cover schools, health care services, or local and State Government. The development of an Integrated IO Matrix (based on both Census and OES survey data) is a complex process that at present can only be performed by BLS in Washington.

OIS Applications:

Demand: Provides an estimate of current occupational employment.
Provides estimates of projected occupational demand.

Technical References:

Bureau Of Labor Statistics Handbook Of Methods For Surveys And Studies, Bulletin 1910; 1976, BLS

Occupational Employment Statistics Program Handbook, Draft, BLS Region IV, November, 1977.

Occupational Employment Statistics Program Survey Operations Manual (2nd Edition), USDOL-BLS and the Manpower Administration, Washington, D.C., 1974

DATA SOURCE: Occupational Guides and Brochures (Briefs and Monographs)

Description:

These guides are published by State Employment Security Agencies. Each guide comprehensively examines a specific job (e.g., automotive mechanic, airline pilot, legal secretary, keypunch operator, etc.). Although presentation format varies from State to State, similar essential information is covered. Areas covered include job duties, related tasks, working conditions, hours, benefits, entrance requirements, promotion systems, training programs, job search methods, and hiring outlook.

Limitations:

- Employment outlook is stated in general terms, not in numbers.
- Frequency of publication will affect the timeliness of the information.
- Some states do not include State and local information; this localization of information is critical if the guides are to be effectively utilized.

OIS Application(s):

Characteristics: Provide extensive information on the characteristics of selected occupations.

Technical References:

State Employment Security Agencies

DATA SOURCE: Occupational Outlook Handbook (OOH)

Description:

The OOH contains information on job duties, educational requirements, employment outlook and earnings, and working conditions for several hundred occupations and 35 industries. Information is based on data received from a variety of sources, including business firms, trade associations, labor unions, professional societies, educational institutions, and government agencies. The Handbook also contains a Dictionary Of Occupational Titles index, referenced to the third edition of the Dictionary and cross referenced to the fourth, the most recent edition. Another related BLS publication, the Occupational Outlook Quarterly, examines various occupational issues and program areas such as apprenticeship programs, counseling, etc. It is available through the Government Printing Office.

Limitations:

- The OOH provides national data. Each State and/or LMA may have different requirements in some occupations. Therefore, local data are required to supplement the OOH data.

OIS Application(s):

Characteristics:	Provides substantial data on the characteristics of specific occupations

Technical References:

The Occupational Outlook Handbook, U.S. Department of Labor, BLS, Bulletin, 1955, 1978

Occupational Outlook Quarterly, U.S. Department of Labor, BLS

DATA SOURCE: State Apprenticeship Agencies, Unions, And Professional Associations

Description:

A variety of brochures, reports, surveys, and studies are generally available from these organizations. Union reports on membership, wage and fringe benefits, and special requirements may be prepared and published by the State agency responsible for regulating or overseeing.

Limitations:

- Occupational titles are limited to those which are represented by the organization. In most cases, these titles can be converted to an appropriate classification.
- Each survey must be evaluated in terms of its methodology. In general, wage surveys by unions and professional associations tend to be relatively reliable and well-designed.
- Information from these organizations on career ladders may not be accurate for the occupation.

OIS Application(s):

Characteristics:	A potential source of data on wages, career ladders, licensing or certification requirements and job duties

Technical References:

Contact appropriate organizations

DATA SOURCE: State And National Apprenticeship System (SNAPS)

Description:

The State and National Apprenticeship System (SNAPS) is an information system designed to produce output reports displaying data on apprentice actions and characteristics by occupations, industries, and programs on a national, regional, and State basis. SNAPS also summarizes the numbers of registered programs, by type of program and by Bureau of Apprenticeship Training (BAT) or State Apprenticeship Agencies (SAA) assignment. Prior to the development of SNAPS, the need for accurate statistics on apprentices enrolled in all registered programs was unmet, as only data on those apprentices in federally-serviced programs were systematically collected and reported in standardized formats. State-serviced programs provided data from a variety of different reporting systems.

Criticism of apprenticeship programs for not enrolling minorities and women in sufficient numbers eventually led to the passage of 29 CFR, Part 30, which states that all apprenticeship programs registered with the Department of Labor or recognized State Apprenticeship Agencies must have "affirmative action programs."

These two factors, the need for "uniform" national apprenticeship statistics and for information on personal characteristics of apprentices, underscored the need for SNAPS.

SNAPS is designed to collect uniform information on apprenticeship programs within all States and U.S. Territories. The method for collecting the information varies depending on:

- Existing procedures for collecting, processing, and storing information on apprenticeship programs within each State
- Availability of field staff vis-a-vis staff in the central State office

Generally, however, a central record clerk, at the State level, maintains SNAPS data and submits the official SNAPS input to the ETA national office for further processing, and output report generation. The SNAPS User's Manual instructs record clerks to record both the industry and occupation in which an apprentice is registered. The industry is classified using the Standard Industrial Classification (SIC) Manual. The occupation is recorded using a DOT title and nine-digit code. As of July 1, 1978, the occupation is recorded using the Fourth Edition of the DOT. In the preparation of summary reports for submission to the Bureau of Apprenticeship and Training (BAT), SNAPS utilizes specially defined occupational groups that include specific DOT codes. There are some apparent inconsistencies in the composition of these occupational groups, making translations to the DOT non-routine. This internal coding system used in SNAPS inhibits the potential integration of SNAPS data into the supply component of an OIS.

SNAPS is a component of a large network of economic and employment and training program information systems. The information available through SNAPS on apprenticeship activity can be viewed as an integral part of the larger network of information systems which deal with employment, the economy, labor force supply and demand, and characteristics of the population which the various human resource development programs are not intended to serve.

Many statistics are recorded by the Department of Labor's Bureau of Labor Statistics (BLS) and the associated State Employment Security Agencies (SESA's) on employment and unemployment, occupational and industrial groups, and characteristics of the labor force. BLS data are, in part, based on the Census Bureau's Current Population Survey. SNAPS data complement the information network of labor force characteristics and actions in employment and training programs, by providing these essential data on all apprentices in registered apprenticeship programs. Data which describe trends in accessions and completions in apprenticeship training are recorded for analysis and comparison with other types of skill training.

Limitations:

- SNAPS and OES data overlap; whereas SNAPS collects data only on registered programs, OES does not determine the status of programs. This causes a problem in comparing data.
- SNAPS data are unavailable for local areas.
- DOT coding procedures vary among states.
- Only "registered" apprentices are counted. Many programs exist that are, in fact, unregistered apprenticeship programs. Registration is voluntary.

OIS Application(s):

Supply: Can be integrated as a source of supply data.

Complementary: Can be used to identify existing training programs and activities.

Technical References:

Apprentice Registration Actions, By Region And State, Employment and Training Administration (annual, USGPO)

SNAPS User's Manual--State And National Apprenticeship System, Employment and Training Administration, U.S. Department of Labor

DATA SOURCE: State Education Management Information System (MIS)

Description:

Many states have a State Education Management Information System that is utilized to collect enrollment, completion, program leaver, and follow-up data for education programs. These systems may be comprehensive in that they cover elementary, secondary, postsecondary, and higher education programs. In some states there may be several such systems according to how the functions of the Department of Education are allocated. The State Education MIS will generally utilize the U.S. Office of Education Instructional Program Codes as presented in the *Standard Terminology For Curriculum And Instruction In Local And State School Systems*, State Educational Records and Report Services, *Handbook VI*, Department of Health, Education, and Welfare. One important byproduct of these systems is that they can provide data on enrollments in completeness from vocational programs.

Limitations:

- Definitions of enrollments, completions, leavers, and training related placements are often inconsistent among Local Education Agencies (LEAs) or States.
- Data collected are of varying degrees of accuracy.

OIS Application(s):

Supply: Major source of supply data for most states.

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DATA SOURCE: Tables Of Working Life--Vital Statistics

Description:

Job opportunities will arise because of the need to replace workers currently in the labor force. Separation from the labor force may result from death, retirement, disability, or temporary withdrawal for personal reasons. However, these losses generally are referred to as deaths and retirements and the rate at which people leave the labor force is known as the "death and retirement rate."

One technique for estimating deaths and retirements is based on "tables of working life." These tables are statistical or actuarial devices for summarizing the mortality experience of the population at some particular period of time, i.e., the death rates, by age, over a 1-year period. A life table starts with a hypothetical group of persons--usually 100,000 born alive--and follows the death rates of the real population at each age. Tables of working life also indicate labor force participation of the initial group of 100,000 from 16 years of age; it shows attrition caused by withdrawals from the labor force as well as by mortality. Tables of working life, which have been set up on an actuarial basis for both men and women, account for deaths and retirements (separately) at each age level.

Limitations:

- Attrition rates are based only on age-sex distributions and ignore many key variables such as education level of workers, pension benefits, occupational hazards and diseases, working conditions, etc.
- Rates based on Census occupational categories cannot be easily translated to different occupational classification structures.
- Age-sex distributions are generally not available for sub-State areas.
- It is difficult to contract an occupation specific table of working life.

OIS Application(s):

Demand: Used to estimate replacement demand.

Technical References:

Tomorrow's Manpower Needs, Supplement No. 4, Estimating Occupational Separations from the Labor Force for States, U.S. Department of Labor, BLS

Monthly Labor Review, "A Table of Expected Working Life for Men, 1968" June 1971

DATA SOURCE: Unemployment Insurance Data

(1) Employment, Wages, and Contributions, ES-202-Contributions Tax System

(2) Characteristics of the Insured Unemployment, ES-203--Benefits

(3) Unemployment Insurance Reports, ES-210--Benefits

Description:

(1) ES-202--The ES-202 is a quarterly report of employment and wage data obtained from private employers and government entities reporting unemployment insurance and, where applicable, disability insurance taxes. This is the most complete and detailed record available of employment by industrial activity and wages paid to workers. In some states it covers all gainful employment except domestics and self-employed persons. Usually, the data are made available in printed form for the State, county, and Standard Metropolitan Statistical Area. Data elements include industry code, industry title, number of firms (reporting units), total quarterly wages, and number of employees as of the mid-week of each month.

(2) ES-203--Provides demographic characteristics of persons in active unemployment insurance claims status, including age, sex, race, type of claim, number of weeks claimed, duration of unemployment, occupational and industrial attachment. Data are collected and reported monthly on a sample of records of continued claims filed by persons seeking benefits through regular State unemployment insurance programs. In some states, the sample is expanded to provide data for larger SMSA's.

(3) ES-210--A summary report of local office claims reported weekly via telegrams. Data is a preliminary count of initial claims for that week. Also shown is the status of claims--initial, additional, weeks claimed, interstate, unpaid weeks, trade disputes, etc. by type of unemployment insurance program.

Limitations:

(1) ES-202

- Data are at least six months old when available.
- Self-employed, agriculture employment and domestic workers are not included.
- No occupational data are available.
- Data may not be available in "wage-request" states.

(2) ES-203

- Available in most states on tape only.
- Data are limited by sample size and field office response, and poor occupational coding.

(3) ES-210

- These are aggregations of claims transactions and do not refer to individuals except to show gross numbers of claimants.
- Since state laws concerning eligibility differ widely, data are not always directly comparable.

OIS Application(s):

(1) ES-202--Demand: Indicates employment base by type of activity, concentration and number of firms. Permits analysis of employment trends, including seasonal changes in relation to UI and UCFE programs and for workload forecasting.

Demographics: Provides industrial profile of a given area by industry and size of employment.

(2) ES-203--Supply: In some states data are available at SMSA or county level. Can analyze utilization of manpower resources.

Characteristics: Data show characteristics of the qualified unemployed who are in UI claims status; opportunity to analyze causes of unemployment.

(3) ES-210--Supply: May be used in time series for economic trend analysis.

Technical References:

ES-202--State Employment Security Agencies
ES-203--Reports, State Offices of Employment Security Agencies
ES-210--Reports, State Employment Security Offices
Summary Of Employment Security Statistical Reports, August 1977, DOL-ETA

DATA SOURCE: Vocational Education Data System (VEDS)

Description:

The VEDS method of reporting secondary, postsecondary, and adult vocational education statistics to the Federal government will be implemented starting with FY 79 (July 1, 1978 - June 30, 1979). The first enrollment and completion information is to be available and reported by November 15, 1979 on a statewide basis. The first completer/leaver and employer follow-up will be conducted on or about April 1, 1980 and the results should be available within two to three months. Following is a detailed description of each component.

(1) Enrollments--NCES Form 2404 Part A, Section I - VII indicates unduplicated enrollment and completion data that should be available by sub-State areas. Part A gives enrollments by six-digit USOE code for 11th and 12th grade, postsecondary (associate degree only), long-term adult (500 or more hours), and short-term adult (less than 500 hours) students who are in occupational preparation programs. A brief description of the data reported in each section follows.

- Part A, Section I (Total Enrollment): This is an unduplicated total enrollment count of all persons included in Section III (enrollment in occupational preparation programs, 11th grade level and above, except short-term adults).

- Part A, Section II (Racial/Ethnic Designation and Sex): Includes enrollments by racial/ethnic group and sex that are reported in Section I (total except short-term adult) and Section III.

- Part A, Section III (Program Level): This includes unduplicated occupational preparation enrollments by program level, grades 11 and 12, postsecondary (associate degree only and does not include those pursuing a certificate or license), and long-term adult (500 or more hours and includes those in apprenticeship programs).

- Part A, Section IV (Short-Term Adult): Includes unduplicated enrollments of short-term adults (less than 500 hours). No follow-up of these persons is required by the VEDS reporting systems.

- Part A, Section V (Special Needs): This section is optional until FY 80, but may be available in some states before that time. The data will give detailed information on Handicapped, Limited English Speaking Ability, and Disadvantaged of those persons counted in Section I.

- Part A, Section VI (Cooperative Vocational Education): Included in this section will be unduplicated enrollments of students reported in Section I "who, by written (and on file) cooperative arrangements between the school and employers, are employed and receive compensation, receive instruction, including required academic courses and related vocational instruction by alteration of study in school with a job in any occupational field." This information may be of little value to an occupational information system though impact is made on the labor market.

- Part A, Section VII (I. Program Completers): Includes student reported in Section I "who finished a planned sequence of courses, services, or activities designed to meet a vocational occupational objective and which purports to teach entry-level job skills."

- Part A, Section VII (2. Transfers): Transfers are persons who have left a vocational program and have gone into another program of instruction. These students will not be included in VEDS follow-up activities.

- Part A, Section VII (3. Program Leavers): This includes persons who have left a vocational program before formally completing the program because they have sufficient entry-level occupational preparation to work in the field for which trained, taken a job related to field of training or other reasons. This information should be available by Program Level for those who "completed more than 50 percent" and "completed 50 percent or less." "Racial/Ethnic Designation and Sex" as well as "Handicapped" information is optional until FY 80.

(2) Follow-up--NCES Form 2404-7 Parts A-D. Each state is required to conduct a follow-up study for a sample of the completers and leavers that were reported on NCES Form 2404 Part A, Section VII (1. and 3.) and does not include "Transfers." This information is restricted to high school, postsecondary and long-term adults (500 or more hours). Persons who have completed a vocational program prior to June 30 of one fiscal year are followed up in April of the following year. The first follow-up collected through VEDS will be conducted during April, 1980 and will consist of persons who completed/left during FY 79.

States will be allowed to use a minimum sample of 20 percent that will be student-based, i.e., the student will be contacted via mail and/or personal contact. A reasonable response rate will be expected by NCES. A second aberration to the sampling technique involves those students who completed at most 50 percent of a program. Ten percent of the sample discussed above will be allowed. Each state will be required to submit their plan for sampling to NCES prior to implementation.

- Part A (1) Completer/Leaver Follow-up Report-Employment Status (follow-up) By Instructional Program (Completers Only): The civilian and military status and level of training (high school, postsecondary and long-term adult) is required by USOE code under the following categories:

  - Employed in a Field Related to Training

  - Employed in a Field Not Related to Training. Not Pursuing Additional Education

  Civilian and Military Status is not required for the categories given below--only level of training.

  - Pursuing Additional Education (Employed in Field Not Related to Training, Not in Labor Force, or Unemployed)

  - Unemployed (Seeking Employment) and Not Pursuing Additional Education

- Not in Labor Force and Not Pursuing Additional Education

- Status Unknown

Those persons reported in the items marked with an * should be included in an aggregation of persons who are available for placement in supply/demand data. Only those persons reported in the item marked with a + who are "Employed in Field Not Related to Training" or "Unemployed" should be included in supply information and not those who are "Not in Labor Force."

- Part A (2) Completer/Leaver Follow-up Report-Employment Status (Follow-up) by Instructional Program (Leavers Who Completed Over Half of the Program). The information available from this report will be identical (hence, the above discussion applies) to Part A (1) except for the status of persons upon leaving their training program (Leavers Who Completed Over Half of the Program).

- Part A (3) Completer/Leaver Follow-up Report-Employment Status (Follow-up)--(Leavers Who Completed At Most Half of the Program). The information required for this report is identical to Part A (1) except for the population involved and only totals are required. Even though the data will not be reported by USOE Code, most states should have the basic data by program code and it should be included in supply.

- Part B Employment Status (Follow-up) by Racial/Ethnic/Sex Designation. This information will be of limited value in developing an Occupational Information System.

- Part C Employment Status (Follow-up) of Handicapped Completer/Leavers. This data is not required by USOE code, but may be available by program code. This information may well be of value in the development of career information for the handicapped.

- Part D Completer/Leaver Follow-Up Report-Field of Employment and Average Hourly Salary by Instructional Program. This report includes only those persons who "were (1) employed (including military) in a field related to their training, or (2) employed (including military) in a field not related to their training and not pursuing additional training." Each returned form will be assigned a two-digit Standard Occupational Classification (SOC) code, based on the individual's employer, job title, and job duties. This information is not mandatory until 1981 (Follow-up of FY 80 completers/leavers).

  This form requires a breakout by USOE code of the number of persons employed in each of 25 two-digit SOC categories and the average hourly salary of males and females. Basic data should be available for acquiring average hourly salary information by two-digit SOC code which might be supplementary to wage and salary data not available from the Employment Security Agency.

All enrollment and follow-up data is to be reported to VEDS by 114 six-digit USOE program categories with certain follow-up data reported by two-digit SOC code. A project has been funded by NCES/NOICC to develop a new set of program codes. These codes will consist of eight digits with the middle four digits being a primary SOC code (other SOC codes may also be matched with a particular program). There will be over 300 of these new codes.

Limitations:

- Sufficient funding may not be available to obtain the data in the desired level of detail.
- Data collection may overlap with HEGIS especially at the junior and community college level (for sub-baccalaureate degrees).
- Apprenticeships cannot be identified separately from long-term adults.
- Short-term adults (less than 500 hours) are not identified by detailed program.
- VEDS only covers programs included in the Vocational Education State Plan.
- Program categories are limited in detail.
- Follow-up data may be based on a limited sample size.
- Follow-up data will be classified using only two-digit SOC codes.
- No follow-up data will be collected on short-term adults or leavers completing less than 50 percent of a program.

OIS Application(s):

Supply: When operational, VEDS will be the major source of data on occupational supply from training/educational institutions.

Technical References:

Vocational Education Data System, NCES

DATA SOURCE: Vocational Rehabilitation Management Information System (MIS)

Description:

Many states operate a Vocational Rehabilitation Management Information System (MIS) to satisfy the statistical reporting requirements of the Rehabilitation Services Administration (RSA). RSA has established statistical reporting standards in the Rehabilitation Services Manual published in 1974. The basis of the standardized system of statistical reporting is form SRS-RSA-300, the Case Service Report. The form allows for individual client based reporting through the complete rehabilitation process, from first referral to final closure. The Case Service Report provides for reporting on the individual when first referred, when the referral process is completed, and when the case is closed from extended evaluation or from the active caseload.

Occupations of vocational rehabilitation clients are recorded at the time of case closure. The title of the occupation and the four-digit RSA occupation code are recorded. The RSA occupational coding structure is based on the Dictionary Of Occupational Titles, Third Edition, published in 1965. In most instances, the first four digits of the six-digit DOT codes are used for occupational coding purposes. For five specific employment situations, special codes have been devised. These codes, summarized in the table below, do not duplicate any four-digit codes in the DOT code structure.

Code	Employment Situation
5999	Homemaker (own home)
6999	Occupations indigenous to sheltered workshops, not elsewhere classified
7999	Unpaid family worker (own family), not elsewhere classified
8999	Vending stand clerk
9999	Vending stand operator

In some states, a vocational or occupational objective is established prior to a client receiving rehabilitation services. This pre-service vocational objective is also classified using a four-digit DOT code. The pre-service occupational code could be compared to the closure occupational code to determine if the initial objective was achieved.

The Federal reporting requirements established by RSA request that States provide summary statistical reports describing the occupational placements of clients. This summary report is a compilation of the four-digit DOT Codes reported. This report can help in ascertaining the supply of workers from vocational rehabilitation programs to the labor market.

Limitations:

- Occupational coding procedures are inconsistent since vocational rehabilitation counselors may be using an abridged list of DOT titles and codes rather than the DOT itself.

- Four-digit DOTs may not provide sufficient detail for certain applications of the data.
- Five employment situation codes are used in the RSA reporting standards that are not compatible with the DOT or other occupational classification structures.

OIS Application(s):

Supply: The Vocational Rehabilitation MIS in a state can indicate the number of clients that have completed a rehabilitation program and are available to work in a specific occupation.

Technical References:

Rehabilitation Services Manual, Department of Health, Education, and Welfare, Social and Rehabilitation Service, National Center for Social Statistics, July 1974

DATA SOURCE: Wage Surveys--Cities, States, Employer Councils

Description:

Surveys of compensation paid to workers, including commissions, bonuses, cash value of meals, lodging, and other gratuities, if furnished in connection with the job. Wages are usually paid by the hour for work rendered. Salaried positions usually assume a minimum number of hours for which payment is made.

Limitations:

- The classification structures vary; however, as the SOICC coordinates data programs it can encourage built-in uniform classification, or at least crossovers to standard classifications.
- These surveys range from excellent to very poor in design and execution. However, they have the distinct advantage of using local data and being up-to-date.
- Surveys are often biased by the groups surveyed (e.g., survey is limited to members of one group). Deliberate bias (to show low rates) occur for negotiation purposes.

OIS Application(s):

Characteristics: Potential source of wage data

Technical References:

Employment Cost Index, U.S. Department of Labor, BLS
Contact appropriate organizations

REFERENCE TABLE FOR APPENDIX B

OCCUPATIONAL, INDUSTRIAL, AND INSTRUCTIONAL CLASSIFICATION STRUCTURES

Classification Structure ... Page

Census Occupational Classification System..........................B-1

Dictionary Of Occupational Titles (DOT)............................B-2, 3

Higher Education General Information Survey (HEGIS)................B-4, 5

Occupational Employment Statistics Survey (OES)....................B-6, 7

Standard Industrial Classification (SIC)...........................B-8, 9, 10

Standard Occupational Classification (SOC).........................B-11, 12, 13, 14

USOE Instructional Program Codes (Handbook VI)....................B-15, 16

CLASSIFICATION STRUCTURE: Census Occupational Classification System

Description:

Each of the 441 occupational categories used in the 1970 census are assigned a three-digit code. These categories are further arranged into 12 major groups and identified as follows:

Census Code (range)	Major Occupation Group
001 to 195	Professional, technical, and kindred workers
201 to 245	Managers and administrators, except farm
260 to 285	Salesworkers
301 to 395	Clerical and kindred workers
401 to 580	Craft and kindred workers
601 to 695	Operatives, except transport
701 to 715	Transport equipment operatives
740 to 785	Laborers, except farm
801 to 802	Farmers and farm managers
821 to 824	Farm laborers and farm labor supervisors
901 to 965	Service workers, except private household
980 to 984	Private household workers

Limitations:

- Definitions are not provided for the occupational titles.
- Occupational groupings include a wide range of skill levels.
- There may be too few occupational classifications for certain applications.
- The Census occupational titles cannot be easily related to other occupational classification structures.

Technical References:

Alphabetical Index Of Occupations And Industries, Bureau of the Census, 1971

U.S. Census Of Population, 1970: Classified Index Of Industries And Occupations, Bureau of the Census

BLS Technical Memos

CLASSIFICATION STRUCTURE: Dictionary Of Occupational Titles (DOT)

Description:

(1) Background:

The first edition of the Dictionary Of Occupational Titles was published in 1939. It was developed due to the need of the public employment service system for standardized occupational information for job placement, employment counseling and occupational and career guidance, and labor market information services. The fourth edition contains almost 20,000 occuptions. Jobs are organized into "occupations" according to their similarities, and the structures and content of the occupation are defined. These definitions are based on studies of how similar jobs are performed across the country. Each occupation is incorporated into a classification structure in which jobs are given nine-digit code numbers (e.g., 201.368-010) which reflect the kind and level of work performed.

(2) Classification Structure:

The jobs are grouped according to some combination of work field, purpose, material, product, service, subject matter, generic terms, and/or industry, as reflected in the first three (3) digits of the code number. This arrangement groups jobs into nine broad categories:

0/1	Professional, technical and managerial occupations
2	Clerical and sales occupations
3	Service occupations
4	Agricultural, fishery, forestry and related occupations
5	Processing occupations
6	Machines trades occupations
7	Bench work occupations
8	Structural work occupations
9	Miscellaneous occupations

The categories are divided into 82 two-digit divisions, and the divisions, in turn, are divided into 559 separate three-digit groups, which reflect the first, second, and third digits of the code number, respectively.

The fourth, fifth, and sixth digits of the code number are based on the findings of the U.S. Training and Employment Service research concerning work function relationships data, people, and things. These relationships are expressed in a hierarchy, from the simple to the complex.[1] Each successive level in the hierarchy includes the simpler functions and excludes the more complex ones.

The final three digits of the code provide a unique identifier for occupation titles. These code numbers indicate the alphabetical order of titles within the six-digit code groups.

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[1] Each of the relationships to people represents a wide range of complexity, resulting in considerable overlap among occupations; their arrangement is somewhat arbitrary and can be considered a hierarchy only in the most general sense.

Three other codes which are associated with the DOT system are the Industrial Designation (indicates the type of economic activity with which the job is usually associated and the industry in which it is most commonly found), the General Education Development (GED) (indicates the amount of general education or life experience necessary for satisfactory performance of any given job), and the Specific Vocational Preparation (SVP) (indicates time required to achieve average performance level in a specific job).

Limitations:

- The need exists for comparison of DOT data to that of other information systems.
- The Dictionary does not contain all of the jobs in the U.S. economy, and a limited number of new jobs are created by technological change.
- Since the definitions are composites of jobs, the Dictionary may not be a good source for local job information.
- The DOT, because of the mammoth job required to update the volume, does not appear often enough to preclude certain occupations from becoming out-of-date with regard to job duties. However, where there is an indication that data on an occupation is no longer current, the Department of Labor maintains 11 Occupational Analysis Field Centers which can be consulted regarding changes to existing occupations and new and emerging occupations. (Locations for these field centers can be found on the inside of the back page of the DOT, 4th Edition.)
- A difficulty also exists in assigning proper occupational codes and titles to entry workers, due to their lack of general and/or specific education and/or training. Usually it is not possible to assign the full nine-digit code to entry workers, but the attempt is made to assign a six-digit code and a generalized title. Also, in job placement, to indicate that an individual is an entry worker, an (X) can replace the period after the third digit in the occupational code.

OIS Application(s):

The Dictionary Of Occupational Titles can be useful in numerous areas ranging from job placement to occupational research, career guidance, labor market information, curricula development and long-range job planning.

Technical References:

Dictionary Of Occupational Titles, 4th Edition, U.S. Department of Labor, USGPO

CLASSIFICATION STRUCTURE: Higher Education General Information Survey (HEGIS)

Description:

(1) Background:

HEGIS was first assembled from various periodic survey forms of the Office of Education in 1966. HEGIS represents an effort to prescribe not how instructional programs should be organized but how the majority of institutions of higher education actually do organize and record data on instructional programs. At the same time, it attempts to reflect categories for which data are needed. HEGIS was designed to be sufficiently flexible and comprehensive to facilitate adoption to overall institutional recordkeeping, apart from HEGIS reporting. The HEGIS data is compiled from surveys which include those of earned degrees and other formal awards, enrollment for advanced degrees, upper division enrollment by major, field of training for faculty, expenditures for instructional program, allocation of physical plant space by instructional program, etc.

(2) Structure:

HEGIS is divided into two sections. Section I deals with conventional academic subdivision of knowledge and training, and Section II contains technological and occupational specialties related to curricula leading to associate degrees and other awards below the baccalaureate. These two sections are divided into discipline divisions, which are further divided into discipline specialties. The first discipline specialty under the discipline division id titled "general" in order to provide some flexibility in the reporting scheme.

The classification code has four digits. The first two digits of the code identify the discipline division. Numbers 50 and above identify the technologies and occupational specialties of Section II. The last two digits are used to identify the discipline specialties.

There are six principal curriculum categories included in Section II. These categories, as explained above, are technological and occupational curricula leading to associate degrees and other awards below the baccalaurate. The six categories are:

5000 Business and Commerce Technologies
5100 Data Processing Technologies
5200 Health Services and Paramedical Technologies
5300 Mechanical and Engineering Technologies
5400 Natural Science Technologies
5500 Public Service Related Technologies

Limitation:

- The HEGIS discipline specialty list was not designed to have the specificity of a list of individualized courses.
- There is a lack of consistent terminology among the participating agencies and institutions.
- The necessity exists for the use of several codes to properly identify a particular faculty member, student, or facility.

OIS Application(s):

Supply: Provides information as to the instructional programs and curricula now in existence or likely to appear in the future.

Provides information for institutional recordkeeping and for structuring program budgets through its classification system as to the distribution of students, faculty assignments, finance and space.

The HEGIS taxonomy has been adopted as the core portion of the Program Classification Structure developed by the Western Interstate Commission for Higher Education's Management Information Systems Program (WICHE-MIS), and will be essential for use of the WICHE-MIS standard models and cost exchange procedures.

Technical References:

Products, Projects, And Services Of The National Center For Education Statistics 1976, USGPO

A Taxonomy Of Instructional Programs In Higher Education by R.A. Huff and M.O. Chandler, U.S. DHEW-OE and NCES

CLASSIFICATION STRUCTURE: Occupational Employment Statistics (OES) Program

Description:

The OES program utilizes three occupational classification schemes; one for the survey component and two for the matrix component. The OES program survey occupational classification systems are a combination of two widely used systems. Titles and descriptions of occupations used for data collection are derived primarily from the Dictionary Of Occupational Titles, Third Edition. The Census of Population is the other major source used for occupational classification. The census is made up of about 400 categories reflecting broad occupational coverage without definitions. The Dictionary Of Occupational Titles, on the other hand, is a more detailed classification system with definitions of each occupation and is organized to meet the operating needs of the public employment service. These two systems, plus information compiled from industry officials and other sources, contributed to the OES occupational classification methods. The OES program is organized to allow for the constant state of change that occupational terminology and classification undergo. Following are descriptions of the various occupational classification methods used in the OES program.

(1) OES Survey Code--Each occupation included in the OES survey program has been coded in accordance with a standard five-digit coding structure developed by BLS especially for the OES survey collection process. The structure has been designed to allow sufficient flexibility for the addition of many more occupations than currently exist and for the addition of applicable occupations from other segments of the national economy which have not yet been included in the OES program. The structure further indicates major occupational sub-divisions which are common to all segments of the economy. It is designed to unite into a homogeneous coding structure all occupations included in a variety of major categories to allow for almost automatic summarization within each category. This feature is critical to the minimization of computer costs. The major occupational code series covering the five-digits of this coding structure and the major occupational classes are shown below. The first two digits and the last two digits of the five-digit code are always numerical; the third digit can be either numerical or alphabetical.

Major Five-Digit Occupational Code Series	Major Class Of Occupation
10000	Managers
20000	Professionals
30000	Technicians
40000	Service Workers
50000	Maintenance, Production, Ect. Workers
60000	Clerical Workers
70000	Sales Workers

Because of the large number of occupations in series 50000, combined alpha/numeric codes are used for some occupations within the series. The use of alpha/numeric codes is necessary so as not to exceed five digits in this major code series.

(2) OES Matrix Code--The information on current employment and projected occupational demand resulting from the OES program are prepared through the use of the National/State industry-occupation matrix (IOM) system. Two separate sets of matrices have been developed; one using the decennial

Census as a data base, and the second based on the OES survey. The Census-based matrix system covers approximately 400 detailed occupations while the survey-based system includes about 1500 occupations. Both systems use a similar yet distinct eight-digit coding structure. The relationship of the two systems to the codes of their respective data sources, i.e., the Census and the OES survey, are described below.

Census-Based Industry-Occupation Matrix System--The Census-based Industry-Occupation Matrix generally follows the classification system used in the 1970 Census of Population. Certain adjustments were made to the Census major occupational categories so that the 1970 matrix categories would be consistent with those used in the 1960 matrix. The matrix contains fewer detailed occupations (377) than are found in the Census (422) because certain Census occupations were aggregated in the matrix.

The matrix structure is based on an eight-digit code which allows for aggregation at several levels. The first digit identifies the major occupational group--1000000 is Professional, Technical and Kindred Workers. The first four digits identify the intermediate occupational group--10020050 is Engineers, Technical. Finally, the last four digits identify the detailed occupation--10020050 is Engineers, Aero-Astronautic. The total of all occupations (code 0000000) is derived by aggregating all the major occupational groups.

Survey-Based Industry-Occupation Matrix System--The larger survey-based matrix system follows a similar coding structure as the Census-based system. The OES survey occupational titles are arranged into the Census-based matrix occupational grouping system and assigned a coding structure similar to that used in the Census-based matrix, which was already familiar to many of the users of the data.

Once classified into the Census occupational groups, the survey occupations were coded with unique eight-digit codes and grouped in a manner similar to that of the Census-based matrix. Although the sequence of the survey-based matrix occupational groups is the same as the Census-based matrix, the codes are not necessarily the same because the survey-based matrix has more summary level occupations. The first two digits of the survey-based matrix code indicate the broad occupational category such as 10000000, professional; 20000000, managerial; or 70000000, service. The third and fourth digits indicate a subdivision of the major group. Thus, 10200000 is teachers. The fifth and sixth digits indicate a specific Census occupational title or summary level title, such as 10201000, adult education teachers; 10202000, college and university teachers; or 10203000, elementary school teachers. The final two digits indicate the specific OES occupation. Thus, 10202002 is college teachers, 10202003 is graduate assistants, 10202004 is extension service specialists.

Limitations:

OES does not contain the occupational detail of the DOT
No agricultural occupations are included in the OES survey codes

Technical References:

OES Survey Operations Manual, Second Edition, U.S. Department of Labor, Bureau of Labor Statistics and the Manpower Administration, December 1974

OES Dictionary of Occupations, BLS

CLASSIFICATION STRUCTURE: Standard Industrial Classification (SIC)

Description:

(1) Background:

The Standard Industrial Classification was developed for use in the classification of establishments by type of activity in which they are engaged, for purposes of facilitating and promoting uniformity and comparability in the presentation of statistical data collected by various agencies of the United States Government, State agencies, trade associations, and private research organizations. The Standard Industrial Classification for establishments differs from a classification for enterprises or companies. A Standard Enterprise Classification related to the Standard Industrial Classification has been developed for use in classifying enterprises. Other classifications have been developed for use in the classification of commodities or products and also for occupations.

The Standard Industrial Classification is intended to cover the entire field of economic activities: agriculture, forestry, fishing, hunting, and trapping; mining; construction; manufacturing; transportation, communication, electric, gas, and sanitary services; wholesale and retail trade; finance, insurance, and real estate; personal, business, repair, and other services; and public administration.

In preparing the Classification, the Technical Committee on Industrial Classification was guided by the following general principles:

(1) The Classification should conform to the existing structure of American industry.

(2) Each establishment is to be classified according to its primary activity.

(3) To be recognized as an industry, the group of establishments constituting the proposed classification must be statistically significant in the number of persons employed, the volume of business done, and other measures of economic activity.

For purposes of this classification, an establishment is an economic unit, generally at a single physical location where business is conducted or where services or industrial operations are performed.

(2) Classification Structure:

The structure of the classification makes it possible to tabulate, analyze, and publish establishment data on a division, a two-digit, a three-digit, or a four-digit industry code basis, according to the level of industrial detail considered most appropriate. An agency may use additional subdivisions within specific four-digit industries in adopting this classification for its own use, while still retaining comparability with the classifications used by other agencies.

It should be noted that the digit "9" that usually appears in the third or fourth-digit position of the classification code designates miscellaneous three-digit groups or four-digit industries covering establishments "not elsewhere classified". These residual establishments do not usually constitute homogeneous primary activity groups; for purposes of this classification system they are grouped together and treated as a separate industry to retain the homogenity of the other industries in the group.

All establishments primarily engaged in the same kind of economic activity are classified in the same four-digit industry, regardless of their types of ownership; hence, their owners may include such diverse legal organizations as corporations, partnerships, individual proprietors, government agencies, joint ventures, etc.

Each establishment is assigned an industry code on the basis of its primary activity, which is determined by its principal product or group of products produced or distributed, or services rendered. Ideally, the principal product or service should be determined by its relative share of "value added" at the establishment. In practice, however, it is rarely possible to obtain this measure for individual products or services; typically, it is necessary to adopt some other criterion which may be expected to give approximately the same results in determining the primary activity of an establishment. It is recommended, therefore, that, when available, the following data measure be used for each of the major economic sectors in assigning industry codes:

Division	Data Measure
Agriculture, forestry, and fishing, hunting, and trapping (except agricultural services)	Value of production
Mining	Value of production
Construction	Value of production
Manufacturing	Value of production
Transportation, communication, electric, gas, and sanitary services	Value of receipts or revenues
Wholesale trade	Value of sales
Retail trade	Value of sales
Finance, insurance, and real estate	Value of receipts
Services (including agricultural services)	Value of receipts of revenue
Public administration	Employment or payroll

Even though a data collecting organization may have no immediate need to analyze or publish establishment data at the four-digit industry level of classification, it may nevertheless be useful to assign four-digit codes to each establishment report wherever the information is available and the incremental cost of such classification is not excessive. The four-digit code assignment should be made directly on the basis of the primary products, services, or activities reported by each establishment at the four-digit industry level of detail. It is possible for the classification of an establishment, based on its primary activity at the two- or three-digit level, to differ from that assigned on the basis of its primary activity at the four-digit level.

Limitations:

- As stated above, the need is present to have both constancy--providing for comparability in most industries--and currency--recognizing important changes in industry.
- In some instances, in activity-diversified establishments, an industry classification based upon the recommended output measure will not represent adequately the realtive economic importance of each of the varied activities carried on at such establishments. In such cases, employment or payroll information should be used to determine the primary activity of the establishments.
- The SIC is a classification of establishments, rather than legal entities or enterprises, by kinds of business, and not by occupations or commodities.

OIS Applications:

The SIC is widely used by individual business firms for classification of their customers and suppliers in market research, as well as by non-government research and business organizations, and trade and professional associations which compile statistics supplementing those provided by Federal agencies.

Industrially classified statistics are used not only to show how industries which compromise the economy have done over the past year, but to indicate the emerging and rapidly growing industries. For the first use, statistics need to be comparably classified over an extended period of time, and for the second use comprehensive and frequent changes should be made to keep abreast of the industrial composition and structure of the economy as it currently exists.

Technical References:

Standard Industrial Classification Manual, 1972, Executive Office of the President, OMB

CLASSIFICATION STRUCTURE: Standard Occupational Classification (SOC)

Description:

(1) **Background:**

The Standard Occupational Classification provides a mechanism for cross-referencing and aggregating occupation-related data collected by social and economic statistical reporting programs. The system is designed to maximize the analytical utility of statistics on labor force, employment, income, and other occupational data collected for a variety of purposes by various agencies of the United States Government, State agencies, professional associations, labor unions and private research organizations.

The Classification covers all occupations in which work is performed for pay or profit, including work performed in family-operated enterprises where direct remuneration may not be made to family members.

The SOC provides a coding system and nomenclature for identifying and classifying occupations within a framework suitable for use in and out of government.

In developing the Classification the following principles were followed:

(1) The classification should realistically reflect the current occupational structure of the United States.

(2) An occupation should be classified on the basis of work performed. Skill level, training, education, licensing and credential requirements usually associated with job performance should be considered only when an inaccurate picture of the occupational structure would be presented without such consideration.

(3) Place of work (industry) should be considered in classifying an occupation only when the work setting alters the nature of the work sufficiently to warrant separate classification. For example, cooks in private households and commercial settings were classified in different unit groups because work is significantly dissimilar in their respective work settings.

(4) The occupations should be classified in homogeneous groups that can be defined so that the content of each group is well delineated.

(5) An occupation that combines two distinct activities should be classified in one group on the basis of the primary activity--the one that accounts for the major portion of the worker's time. However, in cases where one activity requires special skills that are crucial in carrying out the duties of the occupation (although not required for as much time as other activities), that activity should determine the classification of the occupation.

(6) Each occupation should be assigned to only one group at the lowest level of the classification system (unit group).

(7) Large size should not by itself be considered sufficient reason for separate identification of a group.

(8) Small size should not be considered sufficient reason for excluding a group from separate identification, although size must be considered, or the system could become too large to be useful.

(9) Supervisors should be identified separately from the workers they supervise wherever possible in keeping with the real structure of the world of work.

(10) Apprentices and trainees should be classified with the occupations for which training is being taken.

(11) Helpers should be identified separately when their work is such that they are not in training for the occupation they are providing help, or if their work is truly different.

(12) The need for comparability to International Standard Classification Of Occupations should be considered in developing the structure, but it should not be an overriding factor.

(2) Classification Structure:

The SOC is structured on a four-level system: division, major group, minor group, and unit group. Each level represents groupings in successively finer detail which enables users to tabulate or analyze data on different levels of aggregation. Residual categories are established, where necessary, at all levels to handle groups of occupations that do not warrant separate identification or do not fit into one of the specific groups.

Each group includes a listing of Dictionary Of Occupational Titles, Fourth Edition (DOT) titles which are descriptive of the group. They are included in the classification. The titles shown in each group with a nine-digit code following them are from the DOT. Immediately following the title there may be a I, II, III, or IV; these numbers indicate that there is more than one occupation with the same title and industry designation. The first column of numbers, where there are two columns of numbers, is the code for the industry designation that the DOT uses to designate the "kind of industry or industries" where the job is found. It contains from one to four sets of three-digit numbers. The last column contains the nine-digit code corresponding to the title. These titles, codes, and industry codes are explained in one of the volumes of the Dictionary Of Occupational Titles, Fourth Edition.

Selected occupational titles from the 1970 Census of Population Classified Index Of Industries And Occupations are also included in the groups. The Census titles were added to provide additional insight to the content of these groups. These titles have a single three-digit number following them in a column near the center of the page. These codes are Census occupation codes and can be found in the above-mentioned publication.

Limitations:

- Because of the vast amount of occupational detail that was considered in developing such a system, and the wide variety of uses of occupational data, it was not possible to construct a system that will meet the specific needs of all organizations. The level of detail, for example, may not be sufficient for specialized analytical purposes or for internal organizational management requirements. In such cases, however, approaches can generally be taken that will not conflict with the general scheme of the system. It is recognized that the experience gained in using the system and the changes in the structure of occupations will necessitate periodic reviews.
- The SOC was not developed for any programmatic use. It does not define any particular category of occupations that may be affected by existing or future administrative programs. Administrators who may wish to use the classification in future programs that are not statistical must determine that the system is appropriate for their particular use.

OIS Application(s):

Federal government agencies will be encouraged to use the SOC for collecting occupational data, planning occupational education and training programs, planning occupational research and analysis, planning and placement services, studying the mobility of workers, and related activities dealing with occupational statistics. State and local governments, business and labor organizations and research groups are encouraged to use it for statistical programs. Where the SOC detail is not sufficient for a specific use, subclasses should be developed that are compatible. Where conceptual compatibility cannot be avoided without causing program difficulties, cross-references should be made to the extent feasible.

New or unique occupations that are not described or listed in the SOC should be classified in the group to which it is most similar.

The system allows tabulations to be made for special purposes of data from different unit groups. For example, college and university teachers are classified by subject matter taught, which allows teachers to be combined with subject matter specialists, i.e., college chemistry teachers and chemists.

Publication formats of occupational data should follow this structure for major tabular presentations, but recombinations such as mentioned above are encouraged for supplemental analysis.

For some presentations, especially of cross-tabulated data, a very abbreviated set of occupational classes may be needed. In order to provide for standardization of such abbreviated or aggregated groups, the following groupings are suggested:

(1) Administrative, engineering, scientific, teaching, and related occupations, including creative artists (Major Groups 10-34);

(2) Technical, clerical, sales, and related occupations (Major Groups 36-48);

(3) Service occupations, including military occupations (Major Groups 50-53 and 91);

(4) Farming, forestry, fishing, and hunting occupations (Major Groups 55-58);

(5) Production occupations, including construction, extractive, transport, and related occupations (Major Groups 60-83 and 99).

Technical References:

Classified Index Of Industries And Occupations

Dictionary Of Occupational Titles, Fourth Edition (DOT)

International Standard Classification Of Occupations

Standard Occupational Classification Manual, U.S. Department of Commerce, Office of Federal Statistical Policy and Standards, 1977

Standard Occupational Classification Manual--Index, Executive Office of the President, OMB Statistical Policy Division, 1977

CLASSIFICATION STRUCTURE: United States Office of Education Instructional Program Codes (USOE) (Handbook VI)[2]

Description:

(1) **Background**

The codes for the instructional programs in the Office of Education classification system were intended to help local and state education agencies identify, classify, and describe information about subject matter and curriculum activites. Twenty subject-matter areas, plus one area for co-curricular activities and one area for general elementary and secondary education were identified in Standard Terminology For Curriculum And Instruction In Local And State School Systems, State Educational Records and Report Series, Handbook VI, Department of Health, Education and Welfare.

Seven of these areas were designated for vocational-technical education. Within these areas, vocational-technical instructional programs are identified, coded, and defined as follows:

01. Agriculture
04. Distributive education
07. Health occupations education
09. Home economics
14. Office occupations
16. Technical education
17. Trade and industrial occupations

The definitions of the vocational-technical education areas, and their subject matter was determined by: (1) an extensive study of record and report forms of local school systems and state education agencies, (2) an extensive review of the professional literature concerned with subject-matter areas and co-curricular activities, and (3) conferences with numerous persons in state education agencies, local school systems, colleges and universities, and the U.S. Office of Education.

(2) **Classification Structure:**

The USOE code is the identification code for instructional programs. Although Handbook VI contains ten-digit codes, the codes defined in the Vocational Education And Occupations have generally been limited to six digits. In a few cases, eight-digit codes were used to allow for greater detail in describing instructional programs. The interpretation of the codes is as follows:

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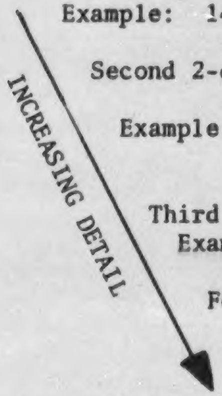
[2] This instructional discipline taxonomy is currently being revised under an NCES contract. The resulting taxonomy will encompass all education programs and will replace the current Handbook VI and HEGIS codes.

14.020201



First 2-digit position: subject matter area
Example: 14. OFFICE OCCUPATIONS

Second 2-digit position: principal segment of subject matter
Example: 14.02 BUSINESS DATA PROCESSING SYSTEMS OCCUPATIONS

Third 2-digit position: division of principal segment
Example: 14.0202 PERIPHERAL EQUIPMENT OPERATORS

Fourth 2-digit position: first-level detail of division of principal segment
Example: 14.020201 KEY PUNCH AND CODING EQUIPMENT OPERATORS

The USOE code is flexible, ranging from broad subject-matter areas to very specific programs. Each succeeding level of specificity is considered to be subsumed in the previous one. In assigning a code to a program, the most specific code that is applicable should be used.

The code numbers ending in "99", located at the end of each subject matter area, designate an instructional program being offered that is not identifiable by other subject matter codes. Note: the addition of the word "other" to the USOE code title.

Example: 14.0199 ACCOUNTING AND COMPUTING OCCUPATIONS, OTHER
Example: 14.0299 BUSINESS DATA PROCESSING SYSTEMS OCCUPATIONS, OTHER
Example: 14.0399 FILING, OFFICE MACHINES, AND GENERAL OFFICE CLERICAL OCCUPATIONS, OTHER

Limitations:

- The descriptions of the instructional programs are composites of subject matter, rather than well-defined courses.
- Special care in interpretation is necessary where four-digit USOE codes are used. The four-digit code may:

  (1) Indicate programs which are combinations of specialized programs, such as those under it in the classification system.

Example: 17.02 APPLIANCE REPAIR includes at least two principle segment divisions, i.e., 17.0201 ELECTRICAL APPLIANCES and 17.0202 GAS APPLIANCES.

2) Provide a means of summarizing data for an entire group. Data is aggregated up to the four-digit code.

Example: 14.02 BUSINESS DATA PROCESSING SYSTEMS OCCUPATIONS may be used to include 14.0201, 14.0202, 14.020201, 14.0203, and 14.0204.

Although the codes are structured by general subject matter areas, i.e., .09 HOME ECONOMICS, there are instances where there is a duplication of segment of subject at the four- and six-digit levels. For example, 09.0203 FOOD MANAGEMENT, PRODUCTION AND SERVICES and 17.2999 "QUANTITY FOOD OCCUPATIONS, OTHER" duplicate subject matter content of these programs. While this is not considered a problem by training program administrators, it is a problem for technicians utilizing data collected and tabulated with USOE codes for demand information.

OIS Application(s):

Supply: The USOE Code is used to categorize enrollments and completions in vocational education programs for reporting purposes.

Technical References

Standard Terminology For Curriculum And Instruction In Local And State School Systems, State Educational Records and Report Series, Handbook VI, Department of Health, Education, and Welfare

REFERENCE TABLE FOR APPENDIX C

CROSS CODE REFERENCES

Cross Code — Page

California Cross Code Index (Census-DOT-USOE)....................C-1, 2

Tomorrow's Manpower Needs--Supplement 3 (Census-USOE-DOT)........C-3, 4, 5

Vocational Education and Occupations (USOE-DOT).................C-6

Vocational Preparation and Occupations (DOT-USOE-SOC-Census-OES).C-7, 8, 9

CROSS CODE: California Cross Code Index (Census-DOT-USOE)

Description:

The manpower and vocational education planner, as well as the occupational counselor, is faced with the problem of how to effectively use the information available from DOT, Census, and USOE coding systems. At the present time, in order to respond to accountability requirements, administrative requests and routine planning functions, the planners must collect, analyze and utilize data from a variety of sources. Because different agencies collect and compile information for different purposes, the data obtained from one agency is not always directly compatible with that of another agency. Employment program planners and vocational educators recognized the problem of a lack of interrelatedness and interdependence of the data in the three primary systems and agreed that there was a need for developing a new system to associate and cross reference the data.

The Cross Code Index was designed to link together three primary coding systems. It contains information pertaining to approximately 220 USOE codes, 14,200 base and defined related occupational titles from the DOT, and 441 census codes. The different numbers of codes in each of the three systems prevents simple one-to-one relationships in the Cross Code Index.

This can be clarified further by asking and answering the following questions:

- Does every DOT code have a census code? Yes
- Does every DOT code have a USOE code? No
- Does every USOE code have a DOT code? Yes, one or more
- Does every USOE code have a census code? No
- Does every census code have a USOE code? No
- Does every census code have a DOT code? Yes, one or more

The magnitude of information in the Cross Code Index required dividing the Index into four volumes. Volumes II, III, and IV contain virtually the same basic information but are presented in three different formats. Each format features one of the three codes and shows the relationships between the other two. Volume I of the Cross Code Index provides definitions, explanations and examples of uses of the tables contained in the other three volumes.

The Cross Code Index was originally designed to correlate and report occupational information and to act as the necessary link in facilitating occupational demand and supply comparisons. Occupational demand is currently reported by census groups while occupational supply data is reported by USOE codes which are further defined by DOT codes and titles. The Cross Code Index identifies and displays the relationships between these three codes.

It enables planners and counselors to make better use of the Manpower reports. For instance, vocational education planners may find the Cross Code Index helpful for translating the occupational demand information, provided in the Industry/Occupation Matrix, so that it can be compared to vocational education program enrollments of a given geographic area. This information can serve as one indicator for determining the necessity for initiating a new vocational education program. Occupational counselors can use the Cross Code Index to explain the relationship of academic education and vocational education to the actual skill requirements of specific occupations. The information in the Cross Code Index permits a very comprehensive look at work, at education as it relates to work, and at the numbers of people currently employed and projected to be employed in different types of work.

The Cross Code Index can provide its users with the most comprehensive source of occupational information currently available--when used in conjunction with the Vocational Education And Occupations, USOE # OE-80061, July, 1969, the Dictionary Of Occupational Titles (DOT), Volumes I and II, USDOL, 1965.

Limitations

It is important to note that this matching capability produces only a preliminary assessment and care should be taken to further verify the results obtained in this manner.

OIS Application(s):

Supply-Demand Interface: A mechanism for matching supply data to demand data

Technical Reference:

California Manpower Management Information System

Labor Market Information and CETA Planning, U.S. Department of Labor, ETA

Cross Code Index Explanation and Usage Manual, Volume 1, California Manpower Management Information System, (CMMIS) 1976

Cross Code Index--Training Package, CMMIS

Cross Code Index, Volume 2, 3 and 4, CMMIS

CROSS CODE: Tomorrow's Manpower Needs--Supplement 3 (Census-USOE-DOT)

Description:

(1) Background

One of the most complex problems facing educational planners is how to use available occupational supply and demand data for the purpose of setting prudent planning priorities. In addition to the myriad factors which make interpretation of the data difficult, such as the occupational and geographic mobility of workers, the educational planner is faced with occupational and educational classification systems which discourage a systematic matching of supply and demand data.

Unfortunately, the classification systems as they are presently constructed do not permit a clear-cut matching of categories on a one-to-one basis. Perhaps the fundamental barrier to a perfect matching of manpower projections and instructional programs is that the various classification systems were developed for different purposes. The vocational education instruction codes were created primarily to facilitate educational planning, to standardize terminology, and to simplify reporting of educational statistics. The instructional programs are composites of subject matter organized to assist the teaching of certain skills that often encompass a variety of jobs. On the other hand, the occupational classification schemes incorporated in manpower projections were designed primarily to enumerate jobs which require extensive formal or specialized training or in which large numbers of people are employed. In short, the problem is that the cluster of jobs in the instructional program frequently differs from the cluster of jobs under an occupational heading.

The conversion table is designed as only a temporary aid for those concerned with matching the various occupational classification systems. The final clarification of occupational classification systems awaits the completion of the Standard Occupational Classification System sponsored by the Office of Management and Budget.

(2) Source of Data

The source of data for the conversion table was a special tabulation from a sample household survey taken in April 1971 by the Bureau of the Census as part of its regular Current Population Survey (CPS). The roughly 60,000 individual responses were allocated to census occupational categories by the Census Bureau and were independently coded to the 1965 Dictionary Of Occupational Titles (usually at the nine-digit level) by the Occupational Analysis Field Centers, part of the U.S. Employment Service, under the direction of the Manpower Administration.

(3) Construction Of The Table

The conversion table was developed by first relating the Census-based BLS matrix occupational classification system to the Dictionary of Occupational Titles and then relating the DOT to the vocational education program codes and titles. The first step was facilitated by the census-to-DOT conversion produced from the CPS sample data. Since the BLS matrix occupational categories are virtually synonymous with the census categories, a link is thereby established between the Census-based BLS matrix and the DOT. The second step was made possible by the table in Vocational Education and Occupations that links the DOT to vocational education program codes and titles. Thus, the DOT serves as a bridge between the Census-based BLS matrix and the vocational education system.

Since a complete listing in the conversion table of all of the DOT codes and titles associated with each BLS matrix category would be unwieldy and would aggravate problems of interpretation, only those DOT occupational titles and codes that constitute at least 5 percent of the total estimated employment in the related matrix category are listed. After the DOT codes and titles which constituted at least 5 percent of estimated employment within each matrix category were determined, each specific DOT was related to its corresponding vocational education code and title (if any) by using the table in Vocational Education And Occupations.

Three rankings occur within each matrix title of the conversion table. These rankings serve to indicate the relative importance of the entries in relation to employment.

Ranking vocational programs. The first ranking is that of the vocational programs within each matrix title in those cases where more than one vocational program was associated with a particular matrix category.

Ranking codes within each vocational program. The second ranking is that of the DOT codes and titles within each vocational program.

Ranking DOT codes with no corresponding vocational programs. The final ranking is that of the DOT codes with no corresponding vocational education programs.

Limitations:

This cross code was developed to be a temporary tool for matching classification systems to be used until full development and implementation of the SOC occurs.

Planners should be cautioned also that some DOT codes and associated instructional programs may be overemphasized while other important codes and programs may not appear in the table. This problem arises because the 5 percent criterion has been applied to matrix occupatonal categories that differ in size. As a result, specific DOT job titles and associated instructional programs in the smaller matrix categories may be listed in the table even though their employment is relatively small nationally. Conversely, specific DOT codes and associated instructional programs that contain relatively large employment nationally may not be listed in the table because they appear in large matrix categories.

- Limitations of the table:

  - The source of the data is a small, limited sample that has errors of coding or judgment or both. Some important DOT titles and jobs and related vocational educational instructional programs may have been overlooked, while others may have been over emphasized.

  - The structure of the various occupational and educational classification systems does not allow a one-to-one matching of the several systems.

OIS Application(s):

Supply-Demand Interface: A mechanism for matching supply data to demand data

Technical References:

Matching Occupational Classifications To Vocational Education Program Codes, Tomorrow's Manpower Needs, Supplement 3 (Revised), U.S. Department of Labor, BLS, 1975

CROSS CODE: Vocational Education and Occupations (USOE - DOT)

Description:

The cross code consists of two main parts: Part I, Instructional Programs Related to Occupations, and Part II, Occupations Related to Instructional Programs. Part I contains a list summarizing and coding the substantive content of defined vocational-technical education programs which are included in the Standard Terminology For Curriculum And Instruction In Local And State School Systems, related to codes, titles, and worker trait groups in the Dictionary Of Occupational Titles, Third Edition. Part II contains a list which shows the Dictionary codes, titles, and worker trait groups related to codes and titles of vocational-technical education programs.

Part I of the cross-code is a six-column listing of coded and defined vocational-technical education instructional programs related to codes, titles, and worker trait groups in the Dictionary Of Occupational Titles. Instructional programs offered in the seven recognized vocational education areas have been identified, classified, and defined. Generally, the descriptions of the instructional programs represent composites of subject matter. In addition, it should be noted that the programs are not associated with any particular level of education, e.g., secondary, adult, but rather are general descriptions which are intended to be related to one or more levels when data are gathered about them.

Part II provides convertibility from specific Dictionary titles and codes to the corresponding vocational education instructional programs. The nine-digit codes are listed in the left hand column in numerical order followed by the job titles, industry designations, and worker trait group page numbers. The corresponding instructional program code numbers and titles are listed in the right hand columns.

Part II provides the means for improving the usefulness of those data in program planning by showing the specific vocational education programs that relate to the Dictionary code numbers and job titles used by State employment services in compiling information on current and projected employment.

Limitations:

- Developed in 1969 therefore cross code is outdated.
- Cross code was never empirically tested for validity
- Demand data is usually available by Census or OES codes, not DOT

OIS Application(s):

Supply-Demand interface - A method for matching supply data in USOE codes to demand data by DOT occupational titles.

Technical References:

Vocational Education And Occupations, Office of Education, DHEW, July 1969

CROSS CODE: Vocational Preparation and Occupations (Census-DOT-OES-SOC-USOE)

Description:

The manpower and vocational education planner, as well as the occupational counselor, has been faced with the problem of how to effectively use the information available from the DOT, USOE and Census Coding Systems. In order to respond to accountability requirements, administrative requests and routine planning functions, these planners must collect, analyze and utilize data from a variety of sources. Because different agencies collect and compile information for different purposes, using these different coding systems, the data obtained from one agency is not always directly comparable with that of another agency.

Lack of association between the systems was further emphasized when the Department of Labor and State Employment Security agencies began preparing and publishing manpower reports, also known as Industry-Occupational Matrices (IOM). The Bureau of Census Occupational titles and codes used in these matrices were not familiar to most planners so a new tool was needed to facilitate interpretation.

More recent State and Federal legislation requires that manpower and vocational education training programs be planned taking occupational demand and supply information into consideration. This requirement also clearly indicates the need for a linkage of the Department of Labor manpower reports and the occupational training program data prepared by the Office of Education.

In 1976, a Cross-Code Index was devised in California to link the three primary coding systems. It contained information pertaining to approximately 220 USOE codes, 441 Census codes and 14,200 base and defined related occupational titles from the DOT.

The Cross-Code Index was designed to correlate and report occupational information and facilitate occupational demand and supply comparisons. Occupational demand is reported by Census groups while occupational supply data is reported by USOE codes which are further defined by DOT codes and titles. The Cross-Code index identified and displayed the relationships between these three codes. It enabled planners and counselors to make better use of the Cross-Code Index to relate occupational demand information (as provided in the IOM) to vocational education program enrollments for a given geographic area. This information served as one indicator for determining whether or not to initiate a new vocational education program. Occupational counselors have used the Cross-Code Index to explain the relationship of academic and vocational education to the actual skill requirements of specific occupations.

Since this index was produced, the DOT has undergone a major revision in its classification structure. Legislation which bears on the issues of supply/demand information has been passed, specifically the Education Amendments of 1976 (P.L. 94-482), the Comprehensive Employment and Training Amendments Act of 1979 (P.L. 94-524) and the Youth Employment and Demonstration Projects Act of 1977 (P.L. 95-93). Improvements have also been made in the collection, analysis and dissemination of labor supply and demand data.

The 1976 Education Amendments also mandate the establishment of two information systems. These are (1) the Vocational Education Data System (VEDS) which is to be operated by the National Center for Educational Statistics (NCES) and the Occupational Information System (OIS) which is to be sponsored by the

National Occupational Information Coordinating Committee (NOICC). These information systems are to provide all the necessary data for State and National program and services planning and evaluation. Congress stipulated that these two information systems are to be compatible. Data extracted from one system should be comparable to that from the other system to make possible marched planning, accounting and evaluation activities.

Additionally, Congress requires that the USOE program codes be justaposed with the Standard Occupational Classification (SOC) codes. In addition, the CETA Amendments of 1978 state that procedures be established for uniform reporting of enrollments, completions and job placements by prime sponsors using the Standard Occupational Classification codes.

This publication consists of two volumes; Volume I, Occupational and Education Crosswalks and Volume II, Index to the Occupational and Education Code Crosswalk. Volume I contains descriptions and codes of vocational-technical education programs related to codes and titles from the Dictionary Of Occupational Titles (DOT) Fourth Edition, the Census Classification, the Occupational Employment Statistics (OES) Classification and the Standard Occupational Classification (SOC). In addition, data for General Education Development (GED), Specific Vocational Preparation (SVP), physical demands, working conditions and industry designations derived from job analysis information used to prepare the DOT are included. Volume II contains a tripartite index showing the classification systems, with the exception of the DOT codes and titles, in three different configurations in relation to the U.S. Office of Education code structure. References are made to the DOT code and titles by page number.

The coding systems have been arranged into three sets of tables. Each table is identified by a primary coding system (OES, Census or SOC) and shows the relationships to the other classification systems in the following manner.

1. OES Code & Title
   Census Code & Title   SOC Code & Title   OE Code & Title   Volume 1, pg.

2. Census Code & Title
   OES Code & Title   SOC Code & Title   OE Code & Title   Volume 1, pg.

3. SOC Code & Title
   OES Code & Title   Census Code & Title   OE Code & Title   Volume 1, pg.

In addition to showing how these codes are related to one another, the tables also indicate the page number in Volume 1 of this publication where additional DOT information can be found for those codes with a vocational education USOE code relationship. All three tables are in ascending numerical order of the major code for that section (i.e., the OES section is in OES ascending order, etc.). Within the OES major section, for each OES code, the relationships are listed in SOC ascending order. Within the other two sections, for each major code, the relationships are in OES ascending order.

Limitations:

- The structure of the various occupational and educational classification systems does not allow a one-to-one matching of the several systems

- Lack of employment data by DOT makes it difficult to distinguish between the importance of the various DOT occupations within a particular USOE program category

OIS Application(s):

Supply/Demand Interface: A mechanism for matching supply data to demand data.

Technical References:

Vocational Prepatation And Occupation--Volume 1, Occupational And Educational Code Crosswalk, (Interim Edition) presented by NOICC, 1979.

Vocational Preparation And Occupations--Volume 2, Index To The Occupational And Educational Code Crosswalk, (Interim Edition) presented by NOICC, 1979.

APPENDIX D--OIS DEVELOPMENT AIDS

To assist in the conduct of workshops or training sessions pertaining to an Occupational Information System (OIS), work sheets have been developed for SOICC use. The work sheets, entitled OIS Structure: Content and Data Sources, are included in this Appendix. The work sheets consist of ten pages with each page having the same columns. The work sheet can be used with the other sections of this document to familiarize users with the components of an OIS and the data sources that provide information for each OIS component. Brief summaries of each of the columns of the work sheet are included below. Column numbers are included in parentheses following the column titles.

- Occupational Information Category (1) -- This column contains the components and data categories that comprise the structure of the OIS. In general the occupational information categories are the same as those depicted in Exhibit 2-3 and discussed in Chapter 3. There are certain differences between the occupational information categories on the work sheets and the text in Chapter 3, but these are intended to facilitate workshop discussions.
- Source of Data (2) -- This column contains the relevant data source(s) for each OIS component and data category in the first column. The data source(s) are depicted opposite the corresponding data categories.
- Reference Page (3) -- This column contains the appropriate text and appendix page numbers for the data sources listed in Column 2. Some of the data sources are not discussed in depth in this document and thus there are no page references for them.
- Importance of Data to Users (4) -- This column is to be used in a workshop setting to facilitate the discussion of data importance to different users. For each occupational information category included in Column 1, the workshop participants should discuss the importance of that information to three specific types of users as depicted in Column 4. The user categories include:
    - Direct Participants in the labor market who make decisions about jobs and careers

- Labor market intermediaries, who assist others in preparing for the world of work through counseling and direct training efforts

- Administrators, Managers, and Planners, who set policy, conduct research, and plan, manage, or administer job-related education and training programs

. Frequency of Data Availability and Use (5) -- This column is to be used in a workshop setting to facilitate discussion of both how frequently data or information becomes available and how often it is used. These topics can be discussed for each different occupational information category. In the discussion of how frequently information in a particular occupational category is used, four alternatives are suggested: (1) constantly, (2) frequently, (3) seldom, and (4) never. Workshop discussions for this column should suggest certain time frames for updating information in an OIS.

. Available in State? (6) -- This column is to be used in a workshop setting to help the participants become familiar with what information is available in the State and what information is not available. If information is not available because a specific Federal/State Program does not exist in the State, then persons should be made aware of this. Availability of information or data within the State should be discussed for each occupational information category in Column 1.

. Responsible Agency (7) -- This column is to be used in a workshop setting to ensure that participants understand which Federal, State, or local agency or organization is responsible for publication of various types of occupational information materials. For each occupational information category in Column 1 the appropriate agencies or organizations should be identified in Column 7. This column can also be used to familiarize workshop participants with acronyms and abbreviations for various government agencies.

* * * *

The work sheets can be valuable for a workshop or in assisting an individual to become familiar with this document. If used in a workshop setting, group leaders should utilize the Small Group Leaders' Text presented in Chapter II of the Training Materials that accompany this document. These work sheets can be useful as OIS development aids especially in the conduct of user training sessions. Additionally, a SOICC director could utilize these worksheets to appraise the state-of-the-art with respect to occupational information development and utilization within the State.

OIS STRUCTURE: CONTENT AND DATA SOURCES

Page 1 of 10

1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE A Text	3 REFERENCE PAGE B Appendix	4 IMPORTANCE OF DATA TO USERS A Direct Partici-pants A-1 career and job decisions	4 B Inter-mediaries B-1 training and counselling	4 C Admin., Mgt., Planner C-1 policy, planning, admin., research	5 FREQUENCY OF: A Availability	5 B Use B-1 constantly	5 B Use B-2 frequently	5 B Use B-3 seldom	5 B Use B-4 never	6 AVAILABLE IN STATE? A Yes	6 B No	7 RESPONSIBLE AGENCY A Federal	7 B State	7 C Other
I. OCCUPATIONAL DEMAND																
A. Current Occupational Demand	Census	24-25	A2-3													
1. Current employment	OES	25	A28-31													
a. Industry	CES	29	A4-5													
b. Occupation	CPS		A7-8													
	LMI Core Products		A22-25													
	ES-202	29	A39-40													
2. Job openings	ESARS	25-26	A12-13													
a. Current job vacancies	Job Bank	26	A18-19													
	LMI Core Products		A22-25													
B. Projected Occupational Demand																
1. Projected employment	OES	27	A28-31													
a. Expansion b. Reduction	LMI Core Products		A22-25													
2. Replacement needs a. Deaths b. Outmigration c. Labor force separations d. Transfers to other occupations	Table of Working Life Vital Statistics	27-28	A38													
	OES	25	A28-31													
	Census	28	A2-3													

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1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A	B	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin, research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	Yes	No	Federal	State	Other
II. OCCUPATIONAL SUPPLY																
A. Current Occupational Supply	OES		A28-31													
1. Employed	CPS		A7-8													
2. Unemployed	UI Reports	34	A39-40													
a. Insured unemployed	ES-203	34	A39-40													
b. Uninsured unemployed	LAUS		A20-21													
	CES		A4-5													
	VEDS	31	A41-44													
	HEGIS	32	A16													
	CETA	32	A6													
	State Vocational Education Reports	33	A37													
	State Vocational Rehabilitation Reports	33	A45-46													
	SNAPS	33	A35-36													
	NCES	32	A-26													
	Census	34	A2-3													
B. Projected Occupational Supply	OES		A28-31													
1. Current employment less labor force withdrawals	LMI Core Products		A22-25													

OIS STRUCTURE: CONTENT AND DATA SOURCES

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1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A Text	B Appendix	A Direct Partici-pants A-1 career and job decisions	B Inter-mediaries B-1 training and counselling	C Admin., Mgt., Planner C-1 policy, planning, admin, research	A Availability	B Use B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	A Yes	B No	A Federal	B State	C Other
2. Projected entrants	NCES	32	A26													
a. Training completers (enrollment and follow-up) and leavers	VEDS	31	A41-44													
	HEGIS	32	A16													
	CETA	32	A6													
b. Immigrants	SNAPS	33	A35-36													
c. New entrants other than training completers	UI Reports	34	A39-40													
d. Transfers from other occupations	Vocational Rehabilitation MIS Reports	33	A45-46													
	State Vocational Education MIS Reports	33	A37													
III. OCCUPATIONAL CHARACTERISTICS																
A. Characteristics of Jobs	DOT	39	A9-11													
	ESARS	38	A12-13													
1. Job description	OES	39	A28-31													
a. Duties	Job Bank		A18-19													
b. Tasks	Guides	39	A32													
c. Materials and equipment	CIS	62-63														
	OOH	39	A33													
2. Conditions of work and job setting	DOT	40	A9-11													
	ESARS		A12-13													
	Guides	40	A32													
	CIS	62-63														
	OOH	40	A33													

OIS STRUCTURE: CONTENT AND DATA SOURCES

1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A	B	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin., research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	Yes	No	Federal	State	Other
3. Physical requirements	DOT	40	A9-11													
	ESARS		A12-13													
	Guides	40	A32													
	CIS	62-63														
	OOH	40	A33													
4. Education/training requirements (a. GED, SVP)	DOT	41	A9-11													
	Guides	42	A32													
	OOH	41	A33													
	School catalogs	47														
5. Career ladders, advancement	Guides		A32													
	OOH	43	A33													
	CIS	62-63														
6. Special requirements	ESARS		A12-13													
a. Licenses, certifications, registration	OOH	40-1	A33													
	CIS	62-63														
b. Apprenticeship	Guides	41	A32													
c. Union membership	ETA Mono-graphs															
7. Industry attachment	ES-202	43	A39-40													
	ESARS		A12-13													
a. Job concentration (geographical and industrial)	OES		A28-31													
	Guides		A32													
b. Major employers	CIS	62-63														
	OOH		A33													
	CES		A4-5													

OIS STRUCTURE: CONTENT AND DATA SOURCES

1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A	B	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin., research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	Yes	No	Federal	State	Other
8. Employer specifications (local, general)	OOH		A33													
	Guides		A32													
	ESARS		A12-13													
	CIS	62-63														
9. Wages, compensation a. Fringe benefits b. Hours c. Non-monetary (local, comparative)	ESARS	38	A12-13													
	OOH	38	A33													
	Guides		A32													
	Unions	38	A34													
	Profes-sional Organi-zations	38	A34													
	DOL's Wage Survey	37-8	A1,A17													
10. Entry, hiring channels (how and where to apply)	ESARS	43	A12-13													
	OOH		A33													
	Guides	43	A32													
	CIS	62-63														
	Unions		A34													
	SNAPS		A35-36													
	Profes-sional Organi-zations		A34													
11. Related occupations a. Clusters b. Comparable skill, experience requirements c. Transfer patterns	DOT	44	B2-3													
	SOC	44	B11-14													
	Crosswalks		C-all													
	Occupa-tional Guides		A32													
	CIS	62-63														
	Census		B-1													
	OES		B6-7													

OIS STRUCTURE: CONTENT AND DATA SOURCES

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1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A	B	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin., research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	Yes	No	Federal	State	Other
12. Personal qualities (worker traits)	OOH	40	A33													
	ESARS		A12-13													
a. Interests b. Aptitudes c. Abilities	Occupational Guides	40	A32													
	CIS	62-63														
B. Characteristics of Workers																
1. Demographic a. Sex b. Age c. Ethnicity	Census	42	A2-3													
	VEDS	46	A41-44													
	HEGIS	47	A16													
	CETA		A6													
	ESARS		A12-13													
2. Socio-economic status (income)	Census	42	A2-3													
	ESARS		A12-13													
	CETA		A6													
3. Labor force status	UI Reports		A39-40													
	Census	42	A2-3													
	CPS	42	A7-8													
	LAUS		A20-21													
4. Training/educational attainment	ESARS		A12-13													
	Census		A2-3													
	VEDS		A41-44													
	HEGIS		A16													
	SNAPS		A35-36													

OIS STRUCTURE: CONTENT AND DATA SOURCES

1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A Yes	B No	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin., research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never			Federal	State	Other
5. Physical status (handicap)	ESARS		A12-13													
	Census		A2-3													
	VEDS		A41-44													
	HEGIS		A16													
	Vocational Rehabilitation MIS Reports		A45-46													
IV. COMPLEMENTARY INFORMATION																
A. Inventory of Training and Educational Institutions	School catalogs	47														
1. Schools	NCES	46-47	A26													
a. Public b. Proprietary	State Department of Education	46	A37													
2. CETA	CIS	62-63														
3. Apprenticeship	VEDS	46	A41-44													
B. Inventory of Training and Educational Programs	HEGIS	47	A16													
	SNAPS	47	A35-36													
1. Programs offered	CETA		A6													
a. Course content b. Cost c. Duration	Vocational Rehabilitation	45-46	A45-46													

OIS STRUCTURE: CONTENT AND DATA SOURCES

1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A	B	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin, research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	Yes	No	Federal	State	Other
2. Faculties/staff a. Instructors b. Counselors c. Support staff	School catalogs	47														
	State Educational MIS	46	A37													
C. Inventory of Fiancial assistance	Catalogs	47														
	Schools	47														
	OE Grants	47														
D. Directory of Placement Assistance																
1. SESA	SESA Agencies															
2. CETA	CETA Prime Sponsors															
3. WIN																
4. Military	Military Reports															
5. Civil service	State, Federal, local Civil Service															
6. Vocational rehabilitation	Vocational Rehabilitation Offices															

OIS STRUCTURE: CONTENT AND DATA SOURCES

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1 OCCUPATIONAL INFORMATION CATEGORY	2 SOURCE OF DATA	3 REFERENCE PAGE		4 IMPORTANCE OF DATA TO USERS			5 FREQUENCY OF:					6 AVAILABLE IN STATE?		7 RESPONSIBLE AGENCY		
		A	B	A Direct Partici-pants	B Inter-mediaries	C Admin., Mgt., Planner	A Availability	B Use				A	B	A	B	C
		Text	Appendix	A-1 career and job decisions	B-1 training and counselling	C-1 policy, planning, admin, research		B-1 constantly	B-2 frequently	B-3 seldom	B-4 never	Yes	No	Federal	State	Other
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